

# ASTOUNDING



DEC. 1938

20¢

SCIENCE-FICTION

A STREET & SMITH PUBLICATION

## THE MERMAN

By L. SPRAGUE de CAMP



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# TRAPPED IN THE PATH OF BLIND DEATH!



JALMER KRAPU

## North Dakota Farmer Faces Doom, Pinned Beneath Disabled Truck

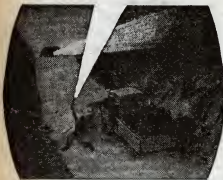
① "I was coming home from town one night with a load of coal on my farm truck," writes Jalmer Krapu, of La Moure, N. D., "when, a few feet from the top of a steep hill, a front wheel came off.

② "In the tool box, I found an old flashlight I hadn't used for months and was surprised to find it gave a strong light. I got out the jack and some other tools, then carefully put out the light to save the juice till I needed it more, and laid the flashlight on the road. My headlights ran on the magneeto and so had gone out when I stopped.

③ "I had the jack almost to its full height when it slipped, the axle crashed down to the road again, pinning my arm beneath

it. As I lay there helpless in the dark with my head against the road, I heard a car coming.

"In a few seconds he would be over the crest of the hill and roaring down on me. I had to warn him before he reached the hill top... or it would be too late! I was square in the middle of the road, and death was on its way... certainly for me, perhaps for others, too.



⑤ "Those fresh DATED 'Eveready' batteries rescued me from as desperate a trap as a man could be caught in. Thanks only to them I got off with only a lame arm when my number seemed to be up.

(Signed)

*Jalmer Krapu*

④ "I thought of the flashlight lying there on the road... but I couldn't reach it! I stretched out toward it as far as I could, managed to touch it with the toe of one foot. I thought my arm under that axle would break as I strained for the light and finally kicked it to where I could reach it with my left hand, snap on the light and wave it above the crest of the hill to warn the approaching driver.



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# ASTOUNDING

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STREET & SMITH'S SCIENCE-FICTION

CONTENTS DECEMBER, 1938

VOLUME XXII NUMBER 4

## SHORT NOVEL

- A MATTER OF FORM . . . . . Horace L. Gold . . . 9  
*The first Astounding Nova story. See the Editor's Page.*

## SHORT STORIES

- THE EPHEMERAE . . . . . Edmond Hamilton . . . 50  
*A star burst—and Man's lifetime was suddenly 70 days instead of 70 years!*
- THE MERMAN . . . . . L. Sprague de Camp . . . 80  
*Brock had a grand idea—and his stuff worked so he could live under water. But—he had to!*
- HELEN O'LOY . . . . . Lester Del Rey . . . 118  
*A story touched with the haunting sympathy that made "The Faithful."*
- "LET CYMBALS RING!" . . . . . M. Schere . . . . . 126  
*An exponent of the one-man-band tangles with Sir Futureman!*
- "THEY HAD RHYTHM" . . . . . Kent Casey . . . . . 141  
*Private Kelton finds the original home-planet of the jitterbugs.*

## SERIAL NOVELS

- NUISANCE VALUE (First of two parts) . . . . . Manly Wade Wellman . . . 61  
*Invasers reduced Man till his greatest hero was no more than a nuisance. But such a nuisance—!*
- SIMULTANEOUS WORLDS (Conclusion) . . . . . Nat Schachner . . . . . 91  
*Linked worlds, linked civilizations that must stand or fall together!*

## SCIENCE ARTICLE

- STORED POWER . . . . . Arthur McCann . . . . . 151  
*Suggesting a problem and a challenge. E. E.'s please note!*

## READERS' DEPARTMENTS

- EDITOR'S PAGE . . . . . 6
- IN TIMES TO COME . . . . . 153  
*The Department of Prophecy and Future Issues.*
- THE ANALYTICAL LABORATORY . . . . . 154  
*Concerning last month's cover.*
- BRASS TACKS AND SCIENCE DISCUSSIONS . . . . . 155  
*The Open House of Controversy.*

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STREET & SMITH PUBLICATIONS, INC.,

79 7th AVE., NEW YORK, N. Y.

# Editorial Mutants

We received a letter this month from a West Coast fan who announced that *Astounding*, after making its series of improvements, had now reached a new level at which, evidently, it would continue. We would point out that the West Coast fan is wrong. *Astounding* is now the unquestioned leader in science-fiction; it is not a boast but a solemn promise that it is going to continue to be by continued improvement.

Not all mutations are made in stories; there are, and will be, mutations of an editorial nature. *Astounding's* second editorial mutant—the first having been the concept of mutant stories—appears on the cover of this issue. There is also an item of definite importance in connection with the little symbol on the first story of the issue, *A Matter of Form*.

The new cover lettering, forecast last month on the contents page, represents an effort to bring the style of type used, more into conformation with the type of material appearing in the magazine; a modern, simple type-face, clean-cut and definite. It is a lettering, I feel, that suits *Astounding's* material far better than the artificially decorative type used heretofore. Your comments will be appreciated.

The second item of interest this month is that little symbol on the title page of Horace L. Gold's story. When the title "*mutant*" was introduced, I promised that each story so marked would have a new, basic idea. *A Matter of Form* does not have a new idea. In fact this basic idea has been familiar in literature for several thousands of years. I know you'll remember *The Master Shall Not Die!* another story that used as its basic theme an idea that appeared in the literature of six thousand years ago.

Yet each of these stories, I think, deserves some special mark, some brief term of description that can tell you beforehand that a story unusual in manner of presentation rather than in basic theme is coming.

In future issues, if *In Times To Come* mentions an *Astounding* Nava story, you will appreciate my meaning. I have not used the term *mutant* recklessly; the new term will be used as sparingly and will have as great meaning in terms of story power as the term *mutant* has had.

The Editor.

**YES-** I'M CONVINCED THAT I CAN MAKE GOOD MONEY IN RADIO. I'M GOING TO START TRAINING FOR RADIO RIGHT NOW.



**NO-** NOT ME. I'M NOT GOING TO WASTE MY TIME. SUCCESS IS JUST A MATTER OF LUCK AND I WASN'T BORN LUCKY.

BILL SAID  
"YES"  
HE'S MAKING  
GOOD MONEY  
IN RADIO  
NOW



THIS N.R.I. TRAINING IS GREAT. AND THEY SENT REAL RADIO PARTS TO HELP ME LEARN QUICKLY

YOU CERTAINLY KNOW RADIO. I'VE NEVER SOUNDED BETTER.



I'VE BEEN STUDYING RADIO ONLY A FEW MONTHS AND I'M ALREADY MAKING GOOD MONEY IN MY SPARE TIME

THANKS

OH BILL! I'M SO PROUD OF YOU. YOU'VE GONE AHEAD SO FAST IN RADIO



YES! I'VE GOT A GOOD JOB NOW AND A REAL FUTURE. THANKS TO N.R.I. TRAINING



TOM SAID  
"NO"  
HE'S STILL  
WAITING  
FOR "LUCK"



BILL'S A LAP TO WASTE HIS TIME STUDYING RADIO AT HOME



SAME OLD GRIND -- SAME SKINNY PAY ENVELOPES -- I'M JUST WHERE I WAS FIVE YEARS AGO

GUESS I'M A FAILURE -- LOOKS LIKE I'LL NEVER GET ANYWHERE



YOU'LL ALWAYS BE A FAILURE, TOM. UNLESS YOU DO SOME THING ABOUT IT. WHY NOT GET YOU ANYWHERE



# I WILL TRAIN YOU AT HOME *in Spare Time* FOR A **GOOD RADIO JOB**



J. E. SMITH, President  
National Radio Institute  
Established 1914

and repair businesses, and jobbers employ testers, inspectors, foremen, engineers, servicemen, and pay up to \$6,000 a year. Automobile, police, aviation, commercial radio, loudspeaker systems are newer fields offering good opportunities now and for the future. Television promises to open many good jobs soon. Men I trained have good jobs in these branches of Radio. Read how they got their jobs. Mail coupon.

**Many Make \$5, \$10, \$15 a Week Extra in Spare Time While Learning**

The day you enroll I start sending *Rich Rewards* Money Job Sheets; show

**Many Radio Experts Make \$30, \$50, \$75 a Week**

Radio broadcasting stations employ engineers, operators, station managers and pay up to \$5,000 a year. Fixing Radio sets in spare time pays many \$250 to \$500 a year--full time jobs with Radio Jobbers, manufacturers and dealers as much as \$50, \$50, \$75 a week. Many Radio Experts open full or part time Radio sales Radio manufacturers

you how to do Radio repair jobs. Throughout your training I send plans and directions that made good spare time money--\$200 to \$500--for hundreds, while learning. I send you special Radio equipment to conduct experiments and build circuits. This 50-50 method of training makes learning at home interesting, fascinating, practical. I ALSO GIVE YOU A MODERN, PROFESSIONAL ALL-WAVE, ALL-PURPOSE RADIO SET SERVICING INSTRUMENT to help you make good money fixing Radios while learning and equip you for full time jobs after graduation.

**Find Out What Radio Offers You**

Act Today. Mail the coupon now for "Rich Rewards in Radio." It's free to any fellow over 16 years old. It points out Radio's spare time and full time opportunities and those coming in Television; tells about my training in Radio and Television; shows you

letters from men I trained, telling what they are doing and earning. Find out what Radio offers YOU! MAIL COUPON in an envelope, or paste on a postcard--NOW!

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Washington, D. C.



IT'S NOT TOO LATE. TAKE MY TIP AND MAIL THAT COUPON TO N.R.I. TONIGHT



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National Radio Institute, Washington, D.C.

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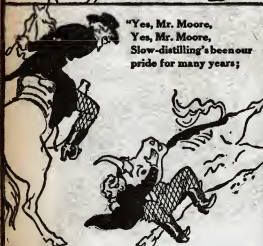
# Mr. Mattingly & Mr. Moore tip you off to a great brand



"Oh, Mr. Mattingly,  
Oh, Mr. Mattingly,  
Lend an ear before you  
tussle with that steer:



"I have heard, from coast to prairie,  
That our mellow whiskey's very,  
Very much the brand the  
whiskey-wise want here!"



"Yes, Mr. Moore,  
Yes, Mr. Moore,  
Slow-distilling's been our  
pride for many years;



"So M & M, my cowboy crony,  
As a long drink or a pony,  
Is real splendiferous whiskey, at a  
price that calls for cheers."

You could search far and wide  
without coming across a whiskey  
value to equal Mattingly & Moore.

M & M, you see, is ALL whiskey  
... every drop slow-distilled.

Furthermore, it's a blend of

straight whiskies—which makes  
the kind of whiskey we believe is  
tops! Get M & M today at your  
package store ... or favorite bar.  
Try a grand, mellow whiskey ...  
at a grand low price!

## Mattingly & Moore

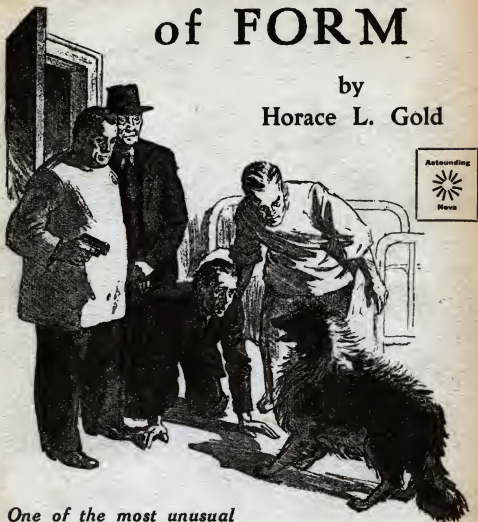
**Long on Quality—Short on Price!**

*A blend of straight whiskies—100% straight whiskies—90 proof.  
Frankfort Distilleries, Incorporated, Louisville and Baltimore.*



# A MATTER of FORM

by  
Horace L. Gold



*One of the most unusual  
stories in years introduces an old theme  
with a new and outstandingly logical viewpoint*

**G**ILROY'S telephone bell jangled into his slumber. With his eyes grimly shut, the reporter flopped over on his side, ground his ear into the pillow and pulled the cover over his head. But the bell jarred on.

When he blinked his eyes open and

saw rain streaking the windows, he gritted his teeth against the insistent clangor and yanked off the receiver. He swore into the transmitter—not a trite blasphemy, but a poetic opinion of the sort of man who woke reporters at four in the morning.



"Don't blame me," his editor replied after a bitter silence. "It was your idea. You wanted the case. They found another whamsit."

Gilroy instantly snapped awake. "They found another catatonic!"

"Over on York Avenue near Ninety-first Street, about an hour ago. He's down in the observation ward at Memorial." The voice suddenly became low and confiding. "Want to know what I think, Gilroy?"

"What?" Gilroy asked in an expectant whisper.

"I think you're nuts. These catatonics are nothing but tramps. They probably drank themselves into catatonia, whatever that is. After all, be reasonable, Gilroy; they're only worth a four-line clip."

Gilroy was out of bed and getting dressed with one hand. "Not this time, chief," he said confidently. "Sure, they're only tramps, but that's part of the story. Look . . . hey! You should have been off a couple of hours ago. What's holding you up?"

The editor sounded disgruntled. "Old Man Talbot. He's seventy-six tomorrow. Had to pad out a blurb on his life."

"What! Wasting time whitewashing that murderer, racketeer—"

"Take it easy, Gilroy," the editor cautioned. "He's got a half interest in the paper. He doesn't bother us often."

"O. K. But he's still the city's one-man crime wave. Well, he'll kick off soon. Can you meet me at Memorial when you quit work?"

"In this weather?" The editor considered. "I don't know. Your news instinct is tops, and if you think this is big— Oh, hell . . . yes!"

Gilroy's triumphant grin soured when he ripped his foot through a sock. He hung up and explored empty drawers for another pair.

The street was cold and miserably deserted. The black snow was melting to

grimy slush. Gilroy hunched into his coat and sloshed in the dirty sludge toward Greenwich Avenue. He was very tall and incredibly thin. With his head down into the driving swirl of rain, his coat flapping around his skinny shanks, his hands deep in his pockets, and his sharp elbows sticking away from his rangy body, he resembled an unhappy stork peering around for a fish.

But he was far from being unhappy. He was happy, in fact, as only a man with a pet theory can be when facts begin to fight on his side.

Splashing through the slush, he shivered when he thought of the catatonic who must have been lying in it for hours, unable to rise, until he was found and carried to the hospital. Poor devil! The first had been mistaken for a drunk, until the cop saw the bandage on his neck.

"Escaped post-brain-operatives," the hospital had reported. It sounded reasonable, except for one thing—catatonics don't walk, crawl, feed themselves or perform *any* voluntary muscular action. Thus Gilroy had not been particularly surprised when no hospital or private surgeon claimed the escaped post-operatives.

A taxi driver hopefully sighted his agitated figure through the rain. Gilroy restrained an urge to hug the hackie for rescuing him from the bitter wind. He clambered in hastily.

"Nice night for a murder," the driver observed conversationally.

"Are you hinting that business is bad?"

"I mean the weather's lousy."

"Well, damned if it isn't!" Gilroy exclaimed sarcastically. "Don't let it slow you down, though. I'm in a hurry. Memorial Hospital, quick!"

The driver looked concerned. He whipped the car out into the middle of the street, scooted through a light that was just an instant too slow.

THREE CATATONICS in a month! Gilroy shook his head. It was a real puzzler. They couldn't have escaped. In the first place, if they had, they would have been claimed; and in the second place, it was physically impossible. And how did they acquire those neat surgical wounds on the backs of their necks, closed with two professional stitches and covered with a professional bandage? New wounds, too!

Gilroy attached special significance to the fact that they were very poorly dressed and suffered from slight malnutrition. But what was the significance? He shrugged. It was an instinctive hunch.

The taxi suddenly swerved to the curb and screeched to a stop. He thrust a bill through the window and got out. The night burst abruptly. Rain smashed against him in a roaring tide. He battered upwind to the hospital entrance.

He was soaked, breathless, half-repentant for his whim in attaching importance to three impoverished catatonics. He gingerly put his hand in his clammy coat and brought out a sodden identification card.

The girl at the reception desk glanced at it. "Oh, a newspaperman! Did a big story come in tonight?"

"Nothing much," he said casually. "Some poor tramp found on York and Ninety-first. Is he up in the screwball ward?"

She scanned the register and nodded. "Is he a friend of yours?"

"My grandson." As he moved off, both flinched at the sound of water squishing in his shoes at each step. "I must have stepped in a puddle."

When he turned around in the elevator, she was shaking her head and pursing her lips maternally. Then the ground floor dropped away.

He went through the white corridor unhesitatingly. Low, horrible moans came from the main ward. He heard them

with academic detachment. Near the examination room, the sound of the rising elevator stopped him. He paused, turning to see who it was.

The editor stepped out, chilled, wet and disgusted. Gilroy reached down and caught the smaller man's arm, guiding him silently through the door and into the examination room. The editor sighed resignedly.

The resident physician glanced up briefly when they unobtrusively took places in the ring of internes about the bed. Without effort, Gilroy peered over the heads before him, inspecting the catatonic with clinical absorption.

The catatonic had been stripped of his wet clothing, toweled, and rubbed with alcohol. Passive, every muscle absolutely relaxed, his eyes were loosely closed, and his mouth hung open in idiotic slackness. The dark line of removed surgical plaster showed on his neck. Gilroy strained to one side. The hair had been clipped. He saw part of a stitch.

"Catatonia, doc?" he asked quietly.

"Who are you?" the physician snapped.

"Gilroy . . . *Morning Post*."

The doctor gazed back at the man on the bed. "It's catatonia, all right. No trace of alcohol or inhibiting drugs. Slight malnutrition."

Gilroy elbowed politely through the ring of internes. "Insulin shock doesn't work, eh? No reason why it should."

"Why shouldn't it?" the doctor demanded, startled. "It always works in catatonia . . . at least, temporarily."

"But it didn't in this case, did it?" Gilroy insisted brusquely.

The doctor lowered his voice defeat- edly. "No."

"What's this all about?" the editor asked in irritation. "What's catatonia, anyhow? Paralysis, or what?"

"It's the last stage of schizophrenia, or what used to be called dementia præ-

cox," the physician said. "The mind revolts against responsibility and searches for a period in its existence when it was not troubled. It goes back to childhood and finds that there are childish cares; goes further and comes up against infantile worries; and finally ends up in a prenatal mental state."

"But it's a gradual degeneration," Gilroy stated. "Long before the complete mental decay, the victim is detected and put in an asylum. He goes through imbecility, idiocy, and after years of slow degeneration, winds up refusing to use his muscles or brain."

THE EDITOR looked baffled. "Why should insulin shock pull him out?"

"It shouldn't!" Gilroy rapped out.

"It should!" the physician replied angrily. "Catatonia is negative revolt. Insulin drops the sugar content of the blood to the point of shock. The sudden hunger jolts the catatonic out of his passivity."

"That's right," Gilroy said incisively. "But this isn't catatonia! It's mighty close to it, but you never heard of a catatonic who didn't refuse to carry on voluntary muscular action. There's no salivary retention! My guess is that it's paralysis."



"Caused by what?" the doctor asked biting.

"That's for you to say. I'm not a physician. How about the wound at the base of the skull?"

"Nonsense! It doesn't come within a quarter inch of the motor nerve. It's *cerias flexibilitas* . . . waxy flexibility." He raised the victim's arm and let go. It sagged slowly. "If it were general paralysis, it would have affected the brain. He'd have been dead."

Gilroy lifted his bony shoulders and lowered them. "You're on the wrong track, doc," he said quietly. "The wound has a lot to do with his condition, and catatonia can't be duplicated by surgery. Lesions can cause it, but the degeneration would still be gradual. And catatonics can't walk or crawl away. He was deliberately abandoned, same as the others."

"Looks like you're right, Gilroy," the editor conceded. "There's something fishy here. All three of them had the same wounds?"

"In exactly the same place, at the base of the skull and to the left of the spinal column. Did you ever see anything so helpless? Imagine him escaping from a hospital, or even a private surgeon!"

The physician dismissed the internes and gathered up his instruments preparatory to hurried flight. "I don't see the motive. All three of them were undernourished, poorly clad; they must have been living in substandard conditions. Who would want to harm them?"

Gilroy bounded in front of the doctor, barring his way. "But it doesn't have to be revenge! It could be experimentation!"

"To prove what?"

Gilroy looked at him quizzically. "You don't know?"

"How should I?"

The reporter clapped his drenched hat on backward and darted to the door.

"Come on, chief. We'll ask Moss for a theory."

"You won't find Dr. Moss here," the physician said. "He's off at night, and tomorrow, I think, he's leaving the hospital."

Gilroy stopped abruptly. "Moss . . . leaving the hospital!" he repeated in astonishment. "Did you hear that, chief? He's a dictator, a slave driver and a louse. But he's probably the greatest surgeon in America. Look at that. Stories breaking all around you, and you're whitewashing Old Man Talbot's murderous life!" His coat bellied out in the wash of his swift, gaunt stride. "Three catatonics found lying on the street in a month. That never happened before. They can't walk or crawl, and they have mysterious wounds at the base of their skulls. Now the greatest surgeon in the country gets kicked out of the hospital he built up to first place. And what do you do? You sit in the office and write stories about what a swell guy Talbot is underneath his slimy exterior!"

The resident physician was relieved to hear the last of that relentlessly incisive, logical voice trail down the corridor. But he gazed down at the catatonia before leaving the room.

He felt less certain that it was catatonia. He found himself quoting the editor's remark—there definitely *was* something fishy there!

But what was the motive in operating on three obviously destitute men and abandoning them; and how had the operation caused a state resembling catatonia?

In a sense, he felt sorry that Dr. Moss was going to be discharged. The cold, slave-driving dictator might have given a good theory. That was the physician's scientific conscience speaking. Inside, he really felt that anything was worth getting away from that silkily mocking voice and the delicately sneering mouth.

## II.

AT FIFTY-FIFTH STREET, Wood came to the last Sixth Avenue employment office. With very little hope, he read the crudely chalked signs. It was an industrial employment agency. Wood had never been inside a factory. The only job he could fill was that of apprentice upholsterer, ten dollars a week; but he was thirty-two years old, and the agency would require five dollars immediate payment.

He turned away dejectedly, fingering the three dimes in his pocket. Three dimes—the smallest, thinnest American coins—

"Anything up there, Mac?"

"Not for me," Wood replied wearily. He scarcely glanced at the man.

He took a last glance at his newspaper before dropping it to the sidewalk. That was the last paper he'd buy, he resolved; with his miserable appearance he couldn't answer advertisements. But his mind clung obstinately to Gilroy's article. Gilroy had described the horror of catatonia. A notion born of defeat made it strangely attractive to Wood. At least, the catatonics were fed and housed. He wondered if catatonia could be simulated—

But the other had been scrutinizing Wood. "College man, ain't you?" he asked as Wood trudged away from the employment office.

Wood paused and ran his hand over his stubbled face. Dirty cuffs stood away from his fringing sleeves. He knew that his hair curled long behind his ears. "Does it still show?" he asked bitterly.

"You bet. You can spot a college man a mile away."

Wood's mouth twisted. "Glad to hear that. It must be an inner light shining through the rags."

"You're a sucker, coming down here with an education. Down here they want poor slobes who don't know any

better . . . guys like me, with big muscles and small brains."

Wood looked up at him sharply. He was too well dressed and alert to have frowned the agencies for any length of time. He might have just lost his job; perhaps he was looking for company. But Wood had met his kind before. He had the hard eyes of the wolf who preyed on the jobless.

"Listen," Wood said coldly, "I haven't a thing you'd want. I'm down to thirty cents. Excuse me while I sneak my books and toothbrush out of my room before the super snatches them."

The other did not recoil or protest virtuously. "I ain't blind," he said quietly. "I can see you're down and out."

"Then what do you want?" Wood snapped ill-temperedly. "Don't tell me you want a threadbare but filthy college man for company—"

His unwelcome friend made a gesture of annoyance. "Cut out the mad-dog act. I was turned down on a job today because I ain't a college man. Seventy-five a month, room and board, doctor's assistant. But I got the air because I ain't a grad."

"You've got my sympathy," Wood said, turning away.

The other caught up with him. "You're a college grad. Do you want the job? It'll cost you your first week's pay . . . my cut, see?"

"I don't know anything about medicine. I was a code expert in a stockbroker's office before people stopped having enough money for investments. Want any codes deciphered? That's the best I can do."

He grew irritated when the stranger stubbornly matched his dejected shuffle.

"You don't have to know anything about medicine. Long as you got a degree, a few muscles and a brain, that's all the doc wants."

Wood stopped short and wheeled.

"Is that on the level?"

"Sure. But I don't want to take a deadhead up there and get turned down. I got to ask you the questions they asked me."

In face of a prospective job, Wood's caution ebbed away. He felt the three dimes in his pocket. They were exceedingly slim and unprotective. They meant two hamburgers and two cups of coffee, or a bed in some filthy hotel dormitory. Two thin meals and sleeping in the wet March air; or shelter for a night and no food—

"Shoot!" he said deliberately.

"Any relatives?"

"Some fifth cousins in Maine."

"Friends?"

"None who would recognize me now." He searched the stranger's face. "What's this all about? What have my friends or relatives got to do—"

"Nothing," the other said hastily. "Only you'll have to travel a little. The doc wouldn't want a wife dragging along, or have you break up your work by writing letters. See?"

WOOD DIDN'T see. It was a singularly lame explanation; but he was concentrating on the seventy-five a month, room and *board*—food.

"Who's the doctor?" he asked.

"I ain't dumb." The other smiled humorlessly. "You'll go there with me and get the doc to hand over my cut."

Wood crossed to Eighth Avenue with the stranger. Sitting in the subway, he kept his eyes from meeting casual, disinterested glances. He pulled his feet out of the aisle, against the base of the seat, to hide the loose, flapping right sole. His hands were cracked and scaly, with tenacious dirt deeply embedded. Bitter, defeated, with the appearance of a mature waif. What a chance there was of being hired! But at least the stranger had risked a nickel on his fare.



Wood followed him out at 103rd Street and Central Park West; they climbed the hill to Manhattan Avenue and headed several blocks downtown. The other ran briskly up the stoop of an old house. Wood climbed the steps more slowly. He checked an urge to run away, but he experienced in advance the sinking feeling of being turned away from a job. If he could only have his hair cut, his suit pressed, his shoes mended! But what was the use of thinking about that? It would cost a couple of dollars. And nothing could be done about his ragged hems.

"Come on!" the stranger called.

Wood tensed his back and stood looking at the house while the other brusquely rang the doorbell. There were three floors and no card above the bell, no doctor's white glass sign in the darkly curtained windows. From the outside it could have been a neglected boardinghouse.

The door opened. A man of his own age, about middle height, but considerably overweight, blocked the entrance. He wore a white laboratory apron. Incongruous in his pale, soft face, his nimble eyes were harsh.

"Back again?" he asked impatiently.

"It's not for me this time," Wood's persistent friend said. "I got a college grad."

Wood drew back in humiliation when the fat man's keen glance passed over his wrinkled, frayed suit and stopped distastefully at the long hair blowing wildly around his hungry, unshaven face. There—he could see it coming: "Can't use him."

But the fat man pushed back a beautiful collie with his leg and held the door wide. Astounded, Wood followed his acquaintance into the narrow hall. To give an impression of friendliness, he stooped and ruffled the dog's ears. The fat man led them into a bare front room.

"What's your name?" he asked indifferently.

Wood's answer stuck in his throat. He coughed to clear it. "Wood," he replied.

"Any relatives?" Wood shook his head.

"Friends?"

"Not any more."

"What kind of degree?"

"Science, Columbia, 1925."

The fat man's expression did not change. He reached into his left pocket and brought out a wallet. "What arrangement did you make with this man?"

"He's to get my first week's salary."

Silently, Wood observed the transfer of several green bills; he looked at them hungrily, pathetically. "May I wash up and take a shave, doctor?" he asked.

"I'm not the doctor," the fat man answered. "My name is Clarence, without a mister in front of it." He turned swiftly to the sharp stranger. "What are you hanging around for?"

Wood's friend backed to the door. "Well, so long," he said. "Good break for both of us, eh, Wood?"

Wood smiled and nodded happily. The trace of irony in the stranger's hard voice escaped him entirely.

"I'll take you upstairs to your room," Clarence said when Wood's business partner had left. "I think there's a razor there."

THEY WENT out into the dark hall, the collie close behind them. An unshaded light bulb hung on a single wire above a gate-leg table. On the wall behind the table an oval, gilt mirror gave back Wood's hairy, unkempt image. A worn carpet covered the floor to a door cutting off the rear of the house, and narrow stairs climbed in a swift spiral to the next story. It was cheerless and neglected, but Wood's conception of luxury had become less exacting.

"Wait here while I make a telephone

call," Clarence said.

He closed the door behind him in a room opposite the stairs. Wood fondled the friendly collie. Through the panel he heard Clarence's voice, natural and unlowered.

"Hello, Moss? . . . Pinero brought back a man. All his answers are all right. . . . Columbia, 1925. . . . Not a cent, judging from his appearance. . . . Call Talbot? For when? . . . O. K. . . . You'll get back as soon as you get through with the board? . . . O. K. . . . Well, what's the difference? You got all you wanted from them, anyhow."

Wood heard the receiver's click as it was replaced and taken off again. Moss? That was the head of Memorial Hospital—the great surgeon. But the article about the catatonics hinted something about his removal from the hospital.

"Hello, Talbot?" Clarence was saying. "Come around at noon tomorrow. Moss says everything'll be ready then. . . . O. K., don't get excited. This is positively the last one! . . . Don't worry. Nothing can go wrong."

Talbot's name sounded familiar to Wood. It might have been the Talbot that the *Morning Post* had written about—the seventy-six-year-old philanthropist. He probably wanted Moss to operate on him. Well, it was none of his business.

When Clarence joined him in the dark hall, Wood thought only of his seventy-five a month, room and board; but more than that, he had a job! A few weeks of decent food and a chance to get some new clothes, and he would soon get rid of his defeatism.

He even forgot his wonder at the lack of shingles and waiting-room signs that a doctor's house usually had. He could only think of his neat room on the third floor, overlooking a bright back yard. And a shave—

### III.

DR. MOSS replaced the telephone with calm deliberation. Striding through the white hospital corridor to the elevator, he was conscious of curious stares. His pink, scrupulously shaven, clean-scrubbed face gave no answer to their questioning eyes. In the elevator he stood with his hands thrust casually into his pockets. The operator did not dare to look at him or speak.

Moss gathered his hat and coat. The space around the reception desk seemed more crowded than usual, with men who had the penetrating look of reporters. He walked swiftly past.

A tall, astoundingly thin man, his stare fixed predatorily on Moss, headed the wedge of reporters that swarmed after Moss.

"You can't leave without a statement to the press, doc!" he said.

"I find it very easy to do," Moss taunted without stopping.

He stood on the curb with his back turned coldly on the reporters and unhurriedly flagged a taxi.

"Well, at least you can tell us whether you're still director of the hospital," the tall reporter said.

"Ask the board of trustees."

"Then how about a theory on the catatonics?"

"Ask the catatonics." The cab pulled up opposite Moss. Deliberately he opened the door and stepped in. As he rode away, he heard the thin man exclaim: "What a cold, clammy reptile!"

He did not look back to enjoy their discomfort. In spite of his calm demeanor, he did not feel too easy himself. The man on the *Morning Post*, Gilroy or whatever his name was, had written a sensational article on the abandoned catatonics, and even went so far as to claim they were not catatonics. He had had all he could do to keep from being involved in the conflicting riot of theory. Talbot owned a large

interest in the paper. He must be told to strangle the articles, although by now all the papers were taking up the cry.

It was a clever piece of work, detecting the fact that the victims weren't suffering from catatonia at all. But the *Morning Post* reporter had cut himself a man-size job in trying to understand how three men with general paralysis could be abandoned without a trace of where they had come from, and what connection the incisions had on their condition. Only recently had Moss himself solved it.

The cab crossed to Seventh Avenue and headed uptown.

The trace of his parting smile of mockery vanished. His mobile mouth whitened, tight-lipped and grim. Where was he to get money from now? He had milked the hospital funds to a frightening debt, and it had not been enough. Like a bottomless maw, his researches could drain a dozen funds.

If he could convince Talbot, prove to him that his failures had not really been failures, that this time he would not slip up—

But Talbot was a tough nut to crack. Not a cent was coming out of his miserly pocket until Moss completely convinced him that he was past the experimental stage. This time there would be no failure!

At Moss' street, the cab stopped and the surgeon sprang out lightly. He ran up the steps confidently, looking neither to the left nor to the right, though it was a fine day with a warm yellow sun, and between the two lines of old houses Central Park could be seen budding greenly.

He opened the door and strode almost impatiently into the narrow, dark hall, ignoring the friendly collie that bounded out to greet him.

"Clarence!" he called out. "Get your new assistant down. I'm not even going to wait for a meal." He threw off his hat, coat and jacket, hanging them

up carelessly on a hook near the mirror.

"Hey, Wood!" Clarence shouted up the stairs. "Are you finished?"

They heard a light, eager step race down from the third floor.

"Clarence, my boy," Moss said in a low, impetuous voice, "I know what the trouble was. We didn't really fail at all. I'll show you . . . we'll follow exactly the same technique!"

"Then why didn't it seem to work before?"

Wood's feet came into view between the rails on the second floor. "You'll understand as soon as it's finished," Moss whispered hastily, and then Wood joined them.

Even the short time that Wood had been employed was enough to transform him. He had lost the defeatist feeling of being useless human flotsam. He was shaved and washed, but that did not account for his kindled eyes.

"Wood . . . Dr. Moss," Clarence said perfunctorily.

Wood choked out an incoherent speech that was meant to inform them that he was happy, though he didn't know anything about medicine.

"You don't have to," Moss replied silkily. "We'll teach you more about medicine than most surgeons learn in a lifetime."

It could have meant anything or nothing. Wood made no attempt to understand the meaning of the words. It was the hint of withdrawn savagery in the low voice that puzzled him. It seemed a very peculiar way of talking to a man who had been hired to move apparatus and do nothing but the most ordinary routine work.

He followed them silently into a shining, tiled operating room. He felt less comfortable than he had in his room; but when he dismissed Moss' tones as a characteristically sarcastic manner of speech, hinting more than it contained in reality, his eagerness returned. While Moss scrubbed his hands and arms in

a deep basin, Wood gazed around.

In the center of the room an operating table stood, with a clean sheet clamped unwrinkled over it. Above the table five shadowless light globes branched. It was a compact room. Even Wood saw how close everything lay to the doctor's hand—trays of tampons, swabs and clamps, and a sterilizing instrument chest that gave off puffs of steam.

"We do a lot of surgical experimenting," Moss said. "Most of your work'll be handling the anæsthetic. Show him how to do it, Clarence."

Wood observed intently. It appeared simple—cut-ins and shut-offs for cyclopropane, helium and oxygen; watch the dials for overrich mixture; keep your eye on the bellows and water filter—

Trained anæsthetists, he knew, tested their mixture by taking a few sniffs. At Clarence's suggestion he sniffed briefly at the whispering cone. He didn't know cyclopropane—so lightning-fast that experienced anæsthetists are sometimes caught by it—

#### IV.

WOOD LAY on the floor with his arms and legs sticking up into the air. When he tried to straighten them, he rolled over on his side. Still they projected stiffly. He was dizzy with the anæsthetic. Something that felt like surgical plaster pulled on a sensitive spot on the back of his neck.

The room was dark, its green shades pulled down against the outer day. Somewhere above him and toward the end of the room, he heard painful breathing. Before he could raise himself to investigate, he caught the multiple tread of steps ascending and approaching the door. He drew back defensively.

The door flung open. Light flared up in the room. Wood sprang to his feet—and found he could not stand erect. He dropped back to a crawling posi-

tion, facing the men who watched him with cold interest.

"He tried to stand up," the old one stated.

"What'd you think I'd do?" Wood snapped. His voice was a confused, snarling growl without words. Baffled and raging, he glared up at them.

"Cover him, Clarence," Moss said. "I'll look at the other one."

Wood turned his head from the threatening muzzle of the gun aimed at him, and saw the doctor lift the man on the bed. Clarence backed to the window and raised the shade. Strong noonlight roused the man. His profile was turned to Wood. His eyes fastened blankly on Moss' scrubbed pink face, never leaving it. Behind his ears curled long, wild hair.

"There you are, Talbot," Moss said to the old man. "He's sound."

"Take him out of bed and let's see him act like you said he would." The old man jittered anxiously on his cane.

Moss pulled the man's legs to the edge of the bed and raised him heavily to his feet. For a short time he stood without aid; then all at once he collapsed to his hands and knees. He stared full at Wood.

It took Wood a minute of startled bewilderment to recognize the face. He had seen it every day of his life, but never so detachedly. The eyes were blank and round, the facial muscles relaxed, idiotic.

*But it was his own face—*

Panic exploded in him. He gaped down at as much of himself as he could see. Two hairy legs stemmed from his shoulders, and a dog's forepaws rested firmly on the floor.

He stumbled uncertainly toward Moss. "What did you do to me?" he shouted. It came out in an animal howl. The doctor motioned the others to the door and backed away warily.

Wood felt his lips draw back tightly over his fangs. Clarence and Talbot

were in the hall. Moss stood alertly in the doorway, his hand on the knob. He watched Wood closely, his eyes glacial and unmoved. When Wood sprang, he slammed the door, and Wood's shoulder crashed against it.

"He knows what happened," Moss' voice came through the panel.

It was not entirely true. Wood knew something had happened. But he refused to believe that the face of the crawling man gazing stupidly at him was his own. It was, though. And Wood himself stood on the four legs of a dog, with a surgical plaster covering a burning wound in the back of his neck.

It was crushing, numbing, too fantastic to believe. He thought wildly of hypnosis. But just by turning his head, he could look directly at what had been his own body, braced on hands and knees as if it could not stand erect.

He was outside his own body. He could not deny that. Somehow he had been removed from it; by drugs or hypnosis, Moss had put him in the body of a dog. He had to get back into his own body again.

But how do you get back into your own body?

His mind struck blindly in all directions. He scarcely heard the three men move away from the door and enter the next room. But his mind suddenly froze with fear. His human body was complete and impenetrable, closed hermetically against his now-foreign identity.

THROUGH HIS congealed terror, his animal ears brought the creak of furniture. Talbot's cane stopped its nervous, insistent tapping.

"That should have convinced even you, Talbot," he heard Moss say. "Their identities are exchanged without the slightest loss of mentality."

Wood started. It meant— No, it was absurd! But it did account for the fact that his body crawled on hands and knees, unable to stand on its feet.

It meant that the collie's identity was in Wood's body!

"That's O. K.," he heard Talbot say. "How about the operation part? Isn't it painful, putting their brains into different skulls?"

"You can't put them into different skulls," Moss answered with a touch of annoyance. "They don't fit. Besides, there's no need to exchange the whole brain. How do you account for the fact that people have retained their identities with parts of their brains removed?"

There was a pause. "I don't know," Talbot said doubtfully.

"Sometimes the parts of the brain that were removed contained nerve centers, and paralysis set in. But the identity was still there. Then what part of the brain contained the identity?"

Wood ignored the old man's questioning murmur. He listened intently, all his fears submerged in the straining of his sharp ears, in the overwhelming need to know what Moss had done to him.

"Figure it out," the surgeon said. "The identity must have been in some part of the brain that wasn't removed, that couldn't be touched without death. That's where it was. At the absolute base of the brain, where a scalpel couldn't get at it without having to cut through the skull, the three medullæ, and the entire depth of the brain itself. There's a mysterious little body hidden away safely down there—less than a quarter of an inch in diameter—called the pineal gland. In some way it controls the identity. Once it was a third eye."

"A third eye, and now it controls the identity?" Talbot exclaimed.

"Why not? The gills of our fish ancestors became the Eustachian canal that controls the sense of balance.

"Until I developed a new technique in removing the gland—by excising from beneath the brain instead of through it—nothing at all was known about it.



In the first place, trying to get at it would kill the patient; and oral or intravenous injections have no effect. But when I exchanged the pineals of a rabbit and a rat, the rabbit acted like a rat, and the rat like a rabbit—within their limitations, of course. It's empiricism—it works, but I don't know why."

"Then why did the first three act like . . . what's the word?"

"Catatonics. Well, the exchanges were really successful, Talbot; but I repeated the same mistake three times, until I figured it out. And by the way, get that reporter on something a little less dangerous. He's getting pretty warm. Excepting the salivary retention, the victims acted almost like catatonics, and for nearly the same reason. I exchanged the pineals of rats for the men's. Well, you can imagine how a rat would act with the relatively huge body of a man to control. It's beyond him. He simply gives up, goes into a passive revolt. But the difference between a dog's body and a man's isn't so great. The dog is puzzled, but at any rate he makes an attempt to control his new body."

"Is the operation painful?" Talbot asked anxiously.

"There isn't a bit of pain. The incision is very small, and heals in a short time. And as for recovery—you can see for yourself how swift it is. I operated on Wood and the dog last night."

WOOD'S DOG'S brain stamped, refusing to function intelligently. If he had been hypnotized or drugged, there might have been a chance of his eventual return. But his identity had been violently and permanently ripped from his body and forced into that of a dog. He was absolutely helpless, completely dependent on Moss to return him to his body.

"How much do you want?" Talbot was asking craftily.

"Five million!"

The old man cackled in a high,

cracked voice. "I'll give you fifty thousand, cash," he offered.

"To exchange your dying body for a young, strong, healthy one?" Moss asked, emphasizing each adjective with special significance. "The price is five million."

"I'll give you seventy-five thousand," Talbot said with finality. "Raising five million is out of the question. It can't be done. All my money is tied up in my . . . uh . . . syndicates. I have to turn most of the income back into merchandise, wages, overhead and equipment. How do you expect me to have five million in cash?"

"I don't," Moss replied with faint mockery.

Talbot lost his temper. "Then what are you getting at?"

"The interest on five million is exactly half your income. Briefly, to use your business terminology, I'm muscling into your rackets."

Wood heard the old man gasp indignantly. "Not a chance!" he rasped. "I'll give you eighty thousand. That's all the cash I can raise."

"Don't be a fool, Talbot," Moss said with deadly calm. "I don't want money for the sake of feeling it. I need an assured income, and plenty of it; enough to carry on my experiments without having to bleed hospitals dry and still not have enough. If this experiment didn't interest me, I wouldn't do it even for five million, much as I need it."

"Eighty thousand!" Talbot repeated.

"Hang onto your money until you rot! Let's see, with your advanced angina pectoris, that should be about six months from now, shouldn't it?"

Wood heard the old man's cane shudder nervelessly over the floor.

"You win, you cold-blooded black-mailer," the old man surrendered.

Moss laughed. Wood heard the furniture creak as they rose and set off toward the stairs.

"Do you want to see Wood and the

dog again, Talbot?"

"No. I'm convinced."

"Get rid of them, Clarence. No more abandoning them in the street for Talbot's clever reporters to theorize over. Put a silencer on your gun. You'll find it downstairs. Then leave them in the acid vat."

Wood's eyes flashed around the room in terror. He and his body had to escape. For him to escape alone, would mean the end of returning to his own body. Separation would make the task of forcing Moss to give him back his body impossible.

But they were on the second floor, at the rear of the house. Even if there had been a fire escape, he could not have opened the window. The only way out was through the door.

Somehow he had to turn the knob, chance meeting Clarence or Moss on the stairs or in the narrow hall, and open the heavy front door—guiding and defending himself and his body!

The collie in his body whimpered baffledly. Wood fought off the instinctive fear that froze his dog's brain. He had to be cool.

Below, he heard Clarence's ponderous steps as he went through the rooms looking for a silencer to muffle his gun.

## V.

GILROY closed the door of the telephone booth and fished in his pocket for a coin. Of all of mankind's scientific gadgets, the telephone booth most clearly demonstrates that this is a world of five feet nine. When Gilroy pulled a coin out of his pocket, his elbow banged against the shut door; and as he dialed his number and stooped over the mouthpiece, he was forced to bend himself into the shape of a cane. But he had conditioned his lanky body to adjust itself to things scaled below its need. He did not mind the lack of room.

But he shoved his shapeless felt hat on the back of his head and whistled softly in a discouraged manner.

"Let me talk to the chief," he said. The receiver rasped in his ear. The editor greeted him abstractedly; Gilroy knew he had just come on and was scattering papers over his desk, looking at the latest. "Gilroy, chief," the reporter said.

"What've you got on the catatonics?"

Gilroy's sharply planed face wrinkled in earnest defeat. "Not a thing, chief," he replied hollowly.

"Where were you?"

"I was in Memorial all day, looking at the catatonics and waiting for an idea."

The editor became sympathetic. "How'd you make out?" he asked.

"Not a thing. They're absolutely dumb and motionless, and nobody around here has anything to say worth listening to. How'd you make out on the police and hospital reports?"

"I was looking at them just before you called." There was a pause. Gilroy heard the crackle of papers being shoved around. "Here they are— The fingerprint bureau has no records of them. No police department in any village, town or city recognizes their pictures."

"How about the hospitals outside New York?" Gilroy asked hopefully.

"No missing patients."

Gilroy sighed and shrugged his thin shoulders eloquently. "Well, all we have is a negative angle. They must have been picked damned carefully. All the papers around the country printed their pictures, and they don't seem to have any friends, relatives or police records."

"How about a human-interest story," the editor encouraged; "what they eat, how helpless they are, their torn, old clothes? Pad out a story about their probable lives, judging from their features and hands. How's that? Not bad, eh?"

"Aw, chief," Gilroy moaned, "I'm licked. That padding stuff isn't my line. I'm not a sob sister. We haven't a thing to work on. These tramps had absolutely no connection with life. We can't find out who they were, where they came from, or what happened to them."

The editor's voice went sharp and incisive. "Listen to me, Gilroy!" he rapped out. "You stop that whining, do you hear me? I'm running this paper, and as long as you don't see fit to quit, I'll send you out after birth lists if I want to."

"You thought this was a good story and you convinced me that it was. Well, I'm still convinced! I want these catatonics tracked down. I want to know all about them, and how they wound up behind the eight-ball. So does the public. I'm not stopping until I *do* know. Get me?"

"You get to work on this story and hang onto it. Don't let it throw you! And just to show you how I'm standing behind you . . . I'm giving you a blank expense account and your own discretion. Now track these catatonics down in any way you can figure out!"

Gilroy was stunned for an instant. "Well, gosh," he stammered, confused, "I'll do my best, chief. I didn't know you felt that way."

"The two of us'll crack this story wide open, Gilroy. But just come around to me with another whine about being licked, and you can start in as copy boy for some other sheet. Do you get me? That's final!"

Gilroy pulled his hat down firmly. "I get you, chief," he declared manfully. "You can count on me right up to the hilt."

He slammed the receiver on its hook, yanked the door open, and strode out with a new determination. He felt like the power of the press, and the feeling was not unjustified. The might and cunning of a whole vast metropolitan newspaper was ranged solidly behind

him. Few secrets could hide from its searching probe.

All he needed was patience and shrewd observation. Finding the first clue would be hardest; after that the story would unwind by itself. He marched toward the hospital exit.

He heard steps hastening behind him and felt a light, detaining touch on his arm. He wheeled and looked down at the resident physician, dressed in street clothes and coming on duty.

"You're Gilroy, aren't you?" the doctor asked. "Well, I was thinking about the incisions on the catatonics' necks—"

"What about them?" Gilroy demanded alertly, pulling out a pad.

"QUITTING again?" the editor asked ten minutes later.

"Not me, chief!" Gilroy propped his stenographic pad on top of the telephone. "I'm hot on the trail. Listen to this. The resident physician over here at Memorial tipped me off to a real clue. He figured out that the incisions on the catatonics' necks aimed at some part of their brains. The incisions penetrate at a tangent a quarter of an inch off the vertebræ, so it couldn't have been to tamper with the spinal cord. You can't reach the posterior part of the brain from that angle, he says, and working from the back of the neck wouldn't bring you to any important part of the neck that can't be reached better from the front or through the mouth."

"If you don't cut the spinal cord with that incision, you can't account for general paralysis; and the cords definitely weren't cut."

"So he thinks the incisions were aimed at some part of the base of the brain that can't be reached from above. He doesn't know what part or how the operation would cause general paralysis."

"Got that? O. K. Well, here's the payoff:

"To reach the exact spot of the brain you want, you ordinarily take off a

good chunk of skull, somewhere around that spot. But these incisions were pre-determined to the last centimeter. And he doesn't know how. The surgeon worked entirely by measurements—like blind flying. He says only three or four surgeons in the country could've done it."

"Who are they, you cluck? Did you get their names?"

Gilroy became offended. "Of course. Moss in New York; Faber in Chicago; Crowninshield in Portland; maybe Johnson in Detroit."

"Well, what're you waiting for?" the editor shouted. "Get Moss!"

"Can't locate him. He moved from his Riverside Drive apartment and left no forwarding address. He was peeved. The board asked for his resignation and he left with a pretty bad name for mismanagement."

The editor sprang into action. "That leaves us four men to track down. Find Moss. I'll call up the other boys you named. It looks like a good tip."

Gilroy hung up. With half a dozen vast strides, he had covered the distance to the hospital exit, moving with ungainly, predatory swiftness.

## VI.

WOOD WAS IN a mind-freezing panic. He knew it hindered him, prevented him from plotting his escape, but he was powerless to control the fearful darting of his dog's brain.

It would take Clarence only a short time to find the silencer and climb the stairs to kill him and his body. Before Clarence could find the silencer, Wood and his body had to escape.

Wood lifted himself clumsily, unsteadily, to his hind legs and took the doorknob between his paws. They refused to grip. He heard Clarence stop, and the sound of scraping drawers came to his sharp ears.

He was terrified. He bit furiously at

the knob. It slipped between his teeth. He bit harder. Pain stabbed his sensitive gums, but the bitter brass dented. Hanging to the knob, he lowered himself to the floor, bending his neck sharply to turn it. The tongue clicked out of the lock. He threw himself to one side, flipping back the door as he fell. It opened a crack. He thrust his snout in the opening and forced it wide.

From below, he heard the ponderous footfalls moving again. Wood stalked noiselessly into the hall and peered down the well of the stairs. Clarence was out of sight.

He drew back into the room and pulled at his body's clothing, backing out into the hall again until the dog crawled voluntarily. It crept after him and down the stairs.

All at once Clarence came out of a room and made for the stairs. Wood crouched, trembling at the sound of metallic clicking that he knew was a silencer being fitted to a gun. He barred his body. It halted, its idiot face hanging down over the step, silent and without protest.

Clarence reached the stairs and climbed confidently. Wood tensed, waiting for Clarence to turn the spiral and come into view.

Clarence sighted them and froze rigid. His mouth opened blankly, startled. The gun trembled impotently at his side, and he stared up at them with his fat, white neck exposed and inviting. Then his chest heaved and his larynx tightened for a yell.

But Wood's long teeth cleared. He lunged high, directly at Clarence, and his fangs snapped together in midair.

Soft flesh ripped in his teeth. He knocked Clarence over; they fell down the stairs and crashed to the floor. Clarence thrashed around, gurgling. Wood smelled a sudden rush of blood that excited an alien lust in him. He flung himself clear and landed on his feet.

His body clumped after him, pausing to sniff at Clarence. He pulled it away and darted to the front door.

From the back of the house he heard Moss running to investigate. He bit savagely at the doorknob, jerking it back awkwardly, terrified that Moss might reach him before the door opened.

But the lock clicked, and he thrust the door wide with his body. His human body flopped after him on hands and knees to the stoop. He hauled it down the steps to the sidewalk and herded it anxiously toward Central Park West, out of Moss' range.

Wood glanced back over his shoulder, saw the doctor glaring at them through the curtain on the door, and, in terror, he dragged his body in a clumsy gallop to the corner where he would be protected by traffic.

He had escaped death, and he and his body were still together; but his panic grew stronger. How could he feed it, shelter it, defend it against Moss and Talbot's gangsters? And how could he force Moss to give him back his body?

But he saw that first he would have to shield his body from observation. It was hungry, and it prowled around on hands and knees, searching for food. The sight of a crawling, sniffing human body attracted disgusted attention; before long they were almost surrounded.

Wood was badly scared. With his teeth, he dragged his body into the street and guided its slow crawl to the other side, where Central Park could hide them with its trees and bushes.

MOSS HAD BEEN more alert. A black car sped through a red light and crowded down on them. From the other side a police car shot in and out of traffic, its siren screaming, and braked dead beside Wood and his body.

The black car checked its headlong rush.

Wood crouched defensively over his

body, glowering at the two cops who charged out at them. One shoved Wood away with his foot; the other raised his body by the armpits and tried to stand it erect.

"A nut—he thinks he's a dog," he said interestedly. "The screwball ward for him, eh?"

The other nodded. Wood lost his reason. He attacked, snapping viciously. His body took up the attack, snarling horribly and biting on all sides. It was insane, hopeless; but he had no way of communicating, and he had to do something to prevent being separated from his body. The police kicked him off.

Suddenly he realized that if they had not been burdened with his body, they would have shot him. He darted wildly into traffic before they sat his body in the car.

"Want to get out and plug him before he bites somebody?" he heard.

"This nut'll take a hunk out of you," the other replied. "We'll send out an alarm from the hospital."

It drove off downtown. Wood scrambled after it. His legs pumped furiously; but it pulled away from him, and other cars came between. He lost it after a few blocks.

Then he saw the black car make a reckless turn through traffic and roar after him. It was too intently bearing down on him to have been anything but Talbot's gangsters.

His eyes and muscles coördinated with animal precision. He ran in the swift traffic, avoiding being struck, and at the same time kept watch for a footpath leading into the park.

When he found one, he sprinted into the opposite lane of traffic. Brakes screeched; a man cursed him in a loud voice. But he scurried in front of the car, guided the sidewalk, and dashed along the cement path until he came to a miniature forest of bushes.

Without hesitation, he left the path

and ran through the woods. It was not a dense growth, but it covered him from sight. He scampered deep into the park.

His frightened eyes watched the carload of gangsters scour the trees on both sides of the path. Hugging the ground, he inched away from them. They beat the bushes a safe distance away from him.

While he circled behind them, creeping from cover to cover, there was small danger of being caught. But he was appalled by the loss of his body. Being near it had given him a sort of courage, even though he did not know how he was going to force Moss to give it back to him. Now, besides making the doctor operate, he had to find a way of getting near it again.

But his empty stomach was knotted with hunger. Before he could make plans he had to eat.

He crept furtively out of his shelter. The gangsters were far out of sight. Then, with infinite patience, he sneaked up on a squirrel. The alert little animal was observant and wary. It took an exhaustingly long time before he ambushed it and snapped its spine. The thought of eating an uncooked rodent revolted him.

He dug back into his cache of bushes with his prey. When he tried to plot a line of action, his dog's brain balked. It was terrified and maddened with helplessness.

There was good reason for its fear—Moss had Talbot's gangsters out gunning for him, and by this time the police were probably searching for him as a vicious dog.

In all his nightmares he had never imagined any so horrible. He was utterly impotent to help himself. The forces of law and crime were ranged against him; he had no way of communicating the fact that he was a man to those who could possibly help him; he was completely inarticulate; and besides, *who* could help him, except Moss?

Suppose he *did* manage to evade the police, the gangsters, and sneaked past a hospital's vigilant staff, and somehow succeeded in communicating—

Even so, only Moss could perform the operation!

He had to rule out doctors and hospitals; they were too routinized to have much imagination. But, more important than that, they could not influence Moss to operate.

HE SCRAMBLED to his feet and trotted cautiously through the clumps of brush in the direction of Columbus Circle. First, he had to be alert for police and gangsters. He had to find a method of communicating—but to somebody who could understand him and exert tremendous pressure on Moss.

The city's smells came to his sensitive nostrils. Like a vast blanket, covering most of them, was a sweet odor that he identified as gasoline vapor. Above it hovered the scent of vegetation, hot and moist; and below it, the musk of mankind.

To his dog's perspective, it was a different world, with a broad, distant, terrifying horizon. Smells and sounds formed scenes in his animal mind. Yet it was interesting. The pad of his paws against the soft, cushioned ground gave him an instinctive pleasure; all the clothes he needed, he carried on him; and food was not hard to find.

While he shielded himself from the police and Talbot's gangsters, he even enjoyed a sort of freedom—but it was a cowardly freedom that he did not want, that was not worth the price. As a man, he had suffered hunger, cold, lack of shelter and security, indifference. In spite of all that, his dog's body harbored a human intelligence; he belonged on his hind legs, standing erect, living the life, good or bad, of a man.

In some way he must get back to that world, out of the solitary anarchy of animality. Moss alone could return



him. He must be forced to do it! He must be compelled to return the body he had robbed!

But how could Wood communicate, and who could help him?

NEAR the end of Central Park, he exposed himself to overwhelming danger.

He was padding along a path that skirted the broad road. A cruising black car accelerated with deadly, predatory swiftness, sped abreast of him. He heard a muffled *pop*. A bullet hissed an inch over his head.

He ducked low and scurried back into the concealing bushes. He snaked nimbly from tree to tree, keeping obstacles between him and the line of fire.

The gangsters were out of the car. He heard them beating the brush for him. Their progress was slow, while his fleet legs pumped three hundred yards of safety away from them.

He burst out of the park and scampered across Columbus Circle, reckless of traffic. On Broadway he felt more secure, hugging the buildings with dense crowds between him and the street.

When he felt certain that he had lost the gangsters, he turned west through one-way streets, alert for signs of danger.

In coping with physical danger, he discovered that his animal mind reacted instinctively, and always more cunningly than a human brain.

Impulsively, he cowered behind stoops, in doorways, behind any sort of shelter, when the traffic moved. When it stopped, packed tightly, for the light, he ran at topnotch speed. Cars skidded across his path, and several times he was almost hit; but he did not slow to a trot until he had zigzagged downtown, going steadily away from the center of the city, and reached West Street, along North River.

He felt reasonably safe from Talbot's gangsters. But a police car approached slowly under the express highway. He crouched behind an overflowing garbage

can outside a filthy restaurant. Long after it was gone, he cowered there.

The shrill wind blowing over the river and across the covered docks picked a newspaper off the pile of garbage and flattened it against the restaurant window.

Through his animal mind, frozen into numbing fear, he remembered the afternoon before—standing in front of the employment agency, talking to one of Talbot's gangsters—

A thought had come to him then: that it would be pleasant to be a catatonic instead of having to starve. He knew better now. But—

He reared to his hind legs and overturned the garbage can. It fell with a loud crash, rolling down toward the gutter, spilling refuse all over the sidewalk. Before a restaurant worker came out, roaring abuse, he pawed through the mess and seized a twisted newspaper in his mouth. It smelled of sour, rotting food, but he caught it up and ran.

## VII.

BLOCKS AWAY from the restaurant, he ran across a wide, torn lot, to cover behind a crumbling building. Sheltered from the river wind, he straightened out the paper and scanned the front page.

It was a day old, the same newspaper that he had thrown away before the employment agency. On the left column he found the catatonic story. It was signed by a reporter named Gilroy.

Then he took the edge of the sheet between his teeth and backed away with it until the newspaper opened clumsily, wrinkled, at the next page. He was disgusted by the fetid smell of putrifying food that clung to it; but he swallowed his gorge and kept turning the huge, stiff, unwieldy sheets with his inept teeth. He came to the editorial page and paused there, studying intently the copyright box.

He set off at a fast trot, wary against danger, staying close to walls of buildings, watching for cars that might contain either gangsters or policemen, darting across streets to shelter—trotting on—

The air was growing darker, and the express highway cast a long shadow. Before the sun went down, he covered almost three miles along West Street, and stopped not far from the Battery.

He gaped up at the towering *Morning Post* Building. It looked impregnable, its heavy doors shut against the wind.

He stood at the main entrance, waiting for somebody to hold a door open long enough for him to lunge through it. Hopefully, he kept his eyes on an old man. When he opened the door, Wood was at his heels. But the old man shoved him back with gentle firmness.

Wood bared his fangs. It was his only answer. The man hastily pulled the door shut.

Wood tried another approach. He attached himself to a tall, gangling man who appeared rather kindly in spite of his intent face. Wood gazed up, wagging his tail awkwardly in friendly greeting. The tall man stooped and scratched Wood's ears, but he refused to take him inside. Before the door closed, Wood launched himself savagely at the thin man and almost knocked him down.

In the lobby, Wood darted through the legs surrounding him. The tall man was close behind, roaring angrily. A frightened stampede of thick-soled shoes threatened to crush Wood; but he twisted in and out between the surging feet and gained the stairs.

He scrambled up them swiftly. The second-floor entrance had plate-glass doors. It contained the executive offices.

He turned the corner and climbed up speedily. The stairs narrowed, artificially illuminated. The third and fourth floors were printing-plant rooms; he ran

past; clambered by the business offices, classified advertising—

At the editorial department he panted before the heavy fire door, waiting until he regained his breath. Then he gripped the knob between his teeth and pulled it around. The door swung inward.

Thick, bitter smoke clawed his sensitive nostrils; his ears flinched at the clattering, shouting bedlam.

Between rows of littered desks, he inched and gazed around hopefully. He saw abstracted faces, intent on typewriters that rattled out stories; young men racing around to gather batches of papers; men and women swarming in and out of the elevators. Shrewd faces, intelligent and alert—

A few had turned for an instant to look at him as he passed; then turned back to their work, almost without having seen him.

He trembled with elation. These were the men who had the power to influence Moss, and the acuteness to understand him! He squatted and put his paw on the leg of a typing reporter, staring up expectantly. The reporter stared, looked down agitatedly, and shoved him away.

"Go on, beat it!" he said angrily. "Go home!"

Wood shrank back. He did not sense danger. Worse than that, he had failed. His mind worked rapidly: suppose he *had* attracted interest, how would he have communicated his story intelligibly? How could he explain in the equivalent of words?

All at once the idea exploded in his mind. He had been a code translator in a stockbroker's office—

HE SAT BACK on his haunches and barked, loud, broken, long and short yelps. A girl screamed. Reporters jumped up defensively, surged away in a tightening ring. Wood barked out his message in Morse, painful, slow,

straining a larynx that was foreign to him. He looked around optimistically for some one who might have understood.

Instead, he met hostile, annoyed stares—and no comprehension.

"That's the hound that attacked me!" the tall, thin man said.

"Not for food, I hope," a reporter answered.

Wood was not entirely defeated. He began to bark his message again; but a man hurried out of the glass-inclosed editor's office.

"What's all the commotion here?" he demanded. He sighted Wood among the ring of withdrawing reporters. "Get that damned dog out of here!"

"Come on—get him out of here!" the thin man shouted.

"He's a nice, friendly dog. Give him the hypnotic eye, Gilroy."

Wood stared pleadingly at Gilroy. He had not been understood, but he had found the reporter who had written the catatonic articles! Gilroy approached cautiously, repeating phrases calculated to soothe a savage dog.

Wood darted away through the rows of desks. He was so near to success—He only needed to find a way of communicating before they caught him and put him out!

He lunged to the top of a desk and crashed a bottle of ink to the floor. It splashed into a dark puddle. Swiftly, quiveringly, he seized a piece of white paper, dipped his paw into the splotch of ink, and made a hasty attempt to write.

His surge of hope died quickly. The wrist of his forepaw was not the universal joint of a human being; it had a single upward articulation! When he brought his paw down on the paper, it flattened uselessly, and his claws worked in a unit. He could not draw back three to write with one. Instead, he made a streaked pad print—

Dejectedly, rather than antagonize

Gilroy, Wood permitted himself to be driven back into an elevator. He wagged his tail clumsily. It was a difficult feat, calling into use alien muscles that he employed with intellectual deliberation. He sat down and assumed a grin that would have been friendly on a human face; but, even so, it reassured Gilroy. The tall reporter patted his head. Nevertheless, he put him out firmly.

But Wood had reason to feel encouraged. He had managed to get inside the building, and had attracted attention. He knew that a newspaper was the only force powerful enough to influence Moss, but there was still the problem of communication. How could he solve it? His paw was worthless for writing, with its single articulation; and nobody in the office could understand Morse code.

He crouched against the white cement wall, his harried mind darting wildly in all directions for a solution. Without a voice or prehensile fingers, his only method of communication seemed to be barking in code. In all that throng, he was certain there would be one to interpret it.

Glances *did* turn to him. At least, he had no difficulty in arousing interest. But they were uncomprehending looks.

For some moments he lost his reason. He ran in and out of the deep, hurrying crowd, barking his message furiously, jumping up at men who appeared more intelligent than the others, following them short distances until it was overwhelmingly apparent that they did not understand, then turning to other men, raising an ear-shattering din of appeal.

HE MET NOTHING but a timid pat or frightened rebuffs. He stopped his deafening yelps and cowered back against the wall, defeated. No one would attempt to interpret the barking of a dog in terms of code. When he

was a man, he would probably have responded in the same way. The most intelligible message he could hope to convey by his barking was simply the fact that he was trying to attract interest. Nobody would search for any deeper meaning in a dog's barking.

He joined the traffic hastening toward the subway. He trotted along the curb, watchful for slowing cars, but more intent on the strewing of rubbish in the gutter. He was murderously envious of the human feet around him that walked swiftly and confidently to a known destination; smug, selfish feet, undeviating from their homeward path to help him. Their owners could convey the finest shadings and variations in emotion, commands, abstract thought, by speech, writing, print, through telephone, radio, books, newspapers—

But his voice was only a piercing, inarticulate yelp that infuriated human beings; his paws were good for nothing but running; his pointed face transmitted no emotions.

He trotted along the curbs of three blocks in the business district before he found a pencil stump. He picked it up in his teeth and ran to the docks on West Street, though he had only the vague outline of a last experiment in communication.

There was plenty of paper blowing around in the river wind, some of it even clean. To the stevedores, waiting at the dock for the payoff, he appeared to be frisking. A few of them whistled to him. In reality, he chased the flying paper with deadly earnestness.

When he captured a piece, he held it firmly between his forepaws. The stub of pencil was gripped in the even space separating his sharp canine fangs.

He moved the pencil in his mouth over the sheet of paper. It was clumsy and uncertain, but he produced long, wavering block letters. He wrote: "I AM A MAN." The short message

covered the whole page, leaving no space for further information.

He dropped the pencil, caught up the paper in his teeth, and ran back to the newspaper building. For the first time since he had escaped from Moss, he felt assured. His attempt at writing was crude and unformed, but the message was unmistakably clear.

He joined a group of tired young legmen coming back from assignments. He stood passively until the door was opened, then lunged confidently through the little procession of cub reporters. They scattered back cautiously, permitting him to enter without a struggle.

Again he raced up the stairs to the editorial department, put the sheet of paper down on the floor, and clutched the doorknob between his powerful teeth.

He hesitated for only an instant, to find the cadaverous reporter. Gilroy was seated at a desk, typing out his article. Carrying his message in his mouth, Wood trotted directly to Gilroy. He put his paw on the reporter's sharp knee.

"What the hell!" Gilroy gasped. He pulled his leg away startledly and



shoved Wood away.

But Wood came back insistently, holding his paper stretched out to Gilroy as far as possible. He trembled hopefully until the reporter snatched the message out of his mouth. Then his muscles froze, and he stared up expectantly at the angular face, scanning it for signs of growing comprehension.

Gilroy kept his eyes on the straggling letters. His face darkened angrily.

"Who's being a wise guy here?" he shouted suddenly. Most of the staff ignored him. "Who let this mutt in and gave him a crank note to bring to me? Come on—who's the genius?"

Wood jumped around him, barking hysterically, trying to explain.

"Oh, shut up!" Gilroy rapped out. "Hey, copy! Take this dog down and see that he doesn't get back in! He won't bite you."

Again Wood had failed. But he did not feel defeated. When his hysterical dread of frustration ebbed, leaving his mind clear and analytical, he realized that his failure was only one of degree. Actually, he had communicated, but lack of space had prevented him from detailed clarity. The method was correct. He only needed to augment it.

Before the copy boy cornered him, Wood swooped up at a pencil on an empty desk.

"Should I let him keep the pencil, Mr. Gilroy?" the boy asked.

"I'll lend you mine, unless you want your arm snapped off," Gilroy snorted, turning back to his typewriter.

Wood sat back and waited beside the copy boy for the elevator to pick them up. He clenched the pencil possessively between his teeth. He was impatient to get out of the building and back to the lot on West Street, where he could plan a system of writing a more explicit message. His block letters were unmanageably huge and shaky; but, with the same logical detachment he used to employ when he was a code translator, he

attacked the problem fearlessly.

He knew that he could not use the printed or written alphabet. He would have to find a substitute that his clumsy teeth could manage, and that could be compressed into less space.

## VIII.

GILROY WAS annoyed by the collic's insistent returning. He crumpled the enigmatic, unintelligible note and tossed it in the wastebasket, but beyond considering it as a practical joke, he gave it no further thought.

His long, large-jointed fingers swiftly tapped out the last page of his story. He ended it with a short line of zeros and dashes, gathered the sheaf of papers, and brought it to the editor.

The editor studied the lead paragraph intently and skimmed hastily through the rest of the story. He appeared uncomfortable.

"Not bad, eh?" Gilroy exulted.

"Uh—what?" The editor jerked his head up blankly. "Oh. No, it's pretty good. Very good, in fact."

"I've got to hand it to you," Gilroy continued admiringly. "I'd have given up. You know—nothing to work on, just a bunch of fantastic events with no beginning and no end. Now, all of a sudden, the cops pick up a nut who acts like a dog and has an incision like the catatonics. Maybe it isn't any clearer, but at least we've got something actually happening. I don't know—I feel pretty good. We'll get to the bottom—"

The editor listened abstractedly, growing more uneasy from sentence to sentence. "Did you see the latest case?" he interrupted.

"Sure. I'm in soft with the resident physician. If I hadn't been following this story right from the start, I'd have said the one they just hauled in was a genuine screwball. He goes bounding around on the floor, sniffs at things, and makes a pathetic attempt to bark.

But he has an incision on the back of his neck. It's just like the others—even has two professional stitches, and it's the same number of millimeters away from the spine. He's a catatonic, or whatever we'll have to call it now—"

"Well, the story's shaping up faster than I thought it would," the editor said, evening the edges of Gilroy's article with ponderous care. "But—" His voice dropped huskily. "Well, I don't know how to tell you this, Gilroy."

The reporter drew his brows together and looked at him obliquely. "What's the hard word this time?" he asked, mystified.

"Oh, the usual thing. You know. I've got to take you off this story. It's too bad, because it was just getting hot. I hated to tell you, Gilroy; but, after all, what the hell. That's part of the game."

"It is, huh?" Gilroy flattened his hands on the desk and leaned over them resentfully. "Whose toes did we step on this time? Nobody's. The hospital has no kick coming. I couldn't mention names because I didn't know any to mention. Well, then, what's the angle?"

The editor shrugged. "I can't argue. It's a front-office order. But I've got a good lead for you to follow tomorrow—"

Savagely, Gilroy strode to the window and glared out at the darkening street. The business department wasn't behind the order, he reasoned angrily; they weren't getting ads from the hospital. And as for the big boss—Talbot never interfered with policy, except when he had to squash a revealing crime story. By eliminating the editors, who yielded an inch when public opinion demanded a mile, the business department, who fought only when advertising was at stake, Gilroy could blame no one but Talbot.

Gilroy rapped his bony knuckles impatiently against the window casement. What was the point of Talbot's order?

Perhaps he had a new way of paying off traitors. Gilroy dismissed the idea immediately; he knew Talbot wouldn't go to that expense and risk possible leakage when the old way of sealing a body in a cement block and dumping it in the river was still effective and cheap.

"I give up," Gilroy said without turning around. "I can't figure out Talbot's angle."

"Neither can I," the editor admitted.

At that confession, Gilroy wheeled. "Then you *know* it's Talbot!"

"Of course. Who else could it be? But don't let it throw you, pal." He glanced around cautiously as he spoke. "Let this catatonic yarn take a rest. Tomorrow you can find out what's behind this bulletin that Johnson phoned in from City Hall."

GILROY ABSENTLY scanned the scribbled note. His scowl wrinkled into puzzlement.

"What the hell is this? All I can make out of it is the A. S. P. C. A. and dog lovers are protesting to the mayor against organized murder of brown-and-white collies."

"That's just what it is."

"And you think Talbot's gang is behind it, naturally." When the editor nodded, Gilroy threw up his hands in despair. "This gang stuff is getting too deep for me, chief. I used to be able to call their shots. I knew why a torpedo was bumped off, or a crime was pulled; but I don't mind telling you that I can't see why a gang boss wants a catatonic yarn hushed up, or sends his mob around plugging innocent collies. I'm going home . . . get drunk—"

He stormed out of the office. Before the editor had time to shrug his shoulders, Gilroy was back again, his deep eyes blazing furiously.

"What a pair of prize dopes we are, chief!" he shouted. "Remember that collie—the one that came in with a hunk of paper in his mouth? We threw him



out, remember? Well, *that's the hound Talbot's gang is out gunning for! He's trying to carry messages to us!*"

"Hey, you're right!" The editor heaved out of the chair and stood uncertainly. "Where is he?"

Gilroy waved his long arms expressively.

"Then come on! To hell with hats and coats!"

They dashed into the staff room. The skeleton night crew loafed around, reading papers before moping out to follow up undeveloped leads.

"Put those papers down!" the editor shouted. "Come on with me—every one of you."

He herded them, baffled and annoyed, into the elevator. At the entrance to the building, he searched up and down the street.

"He's not around, Gilroy. All right, you deadbeats, divide up and chase around the streets, whistling. When you see a brown-and-white collie, whistle to him. He'll come to you. Now beat it and do as I say."

They moved off slowly. "Whistle?" one called back anxiously.

"Yes, whistle!" Gilroy declared. "Forget your dignity. Whistle!"

They scattered, whistling piercingly the signals that are supposed to attract dogs. The few people around the business district that late were highly interested and curious, but Gilroy left the editor whistling at the newspaper building, while he whistled toward West Street. He left the shrill calls blowing away from the river, and searched along the wide highway in the growing dark.

For an hour he pried into dark spaces between the docks, patiently covering his ground. He found nothing but occasional longshoremen unloading trucks and a light uptown traffic. There were only homeless, prowling mongrels and starving drifters; no brown-and-white collie.

He gave up when he began to feel

hungry. He returned to the building, hoping the others had more luck, and angry with himself for not having followed the dog when he had the chance.

The editor was still there, whistling more frantically than ever. He had gathered a little band of inquisitive on-lookers, who waited hopefully for something to happen. The reporters were also returning.

"Find anything?" the editor paused to ask.

"Nope. He didn't show up here?"

"Not yet. Oh, he'll be back, all right. I'm not afraid of that." And he went back to his persistent whistling, disregarding stares and rude remarks. He was a man with an iron will. He sneered openly at the defeated reporters when they slunk past him into the building.

In the comparative quiet of the city, above the editor's shrills, Gilroy heard swiftly pounding feet. He gazed over the heads of the pack that had gathered around the editor.

A reporter burst into view, running at top speed and doing his best to whistle attractively through dry lips at a dog streaking away from him.

"Here he comes!" Gilroy shouted. He broke through the crowd and his long legs flashed over the distance to the collie. In his excitement, empty, toneless wind blew between his teeth; but the dog shot straight for him just the same. Gilroy snatched a dirty piece of paper out of his mouth. Then the dog was gone, toward the docks; and a black car rode ominously down the street.

Gilroy half started in pursuit, paused, and stared at the slip of paper in his hand. For a moment he blamed the insufficient light, but when the editor came up to him, yelling blasphemy for letting the dog escape, Gilroy handed him the unbelievable note.

"That dog can take care of himself," Gilroy said. "Read this."

The editor drew his brows together

over the message. It read:

*[Musical notation]*

"Well, I'll be damned!" the editor exclaimed. "Is it a gag?"

"Gag, my eye!"

"Well, I can't make head or tail of it!" the editor protested.

Gilroy looked around undeterminedly, as if for someone to help them. "You're not supposed to. It's a code message." He swung around, stabbing an enormously long, knobbed finger at the editor. "Know anyone who can translate code—cryptograms?"

"Uh—let's see. How about the police, or the G-men—"

Gilroy snorted. "Give it to the bulls before we know what's in it!" He carefully tucked the crudely penciled note into his breast pocket and buttoned his coat. "You stick around outside here, chief. I'll be back with the translation. Keep an eye out for the pooch."

He loped off before the editor could more than open his mouth.

IN THE index room of the Forty-second Street Library, Gilroy crowded into the telephone booth and dialed a number. His eyes ached and he had a dizzy headache. Close reasoning always scrambled his wits. His mind was intuitive rather than ploddingly analytical.

"Executive office, please," he told the night operator. "There must be somebody there. I don't care if it's the business manager himself. I want to speak to somebody in the executive office. I'll wait." He lolled, bent into a convenient shape, against the wall. "Hello. Who's this? . . . Oh, good. Listen, Rothbart, this is Gilroy. Do me a favor, huh? You're nearest the front entrance. You'll find the chief outside the door. Send him in to the telephone, and take his place until he gets through.

While you're out there, watch for a brown-and-white collie. Nab him if he shows up and bring him inside. . . . Will you? . . . Thanks!"

Gilroy held the receiver to his ear, defeatedly amusing himself by identifying the sounds coming over the wire. He was no longer in a hurry, and when he had to pay another nickel before the editor finally came to the telephone, he did not mind.

"What's up, Gilroy?" the editor asked hopefully.

"Nothing, chief. That's why I called up. I went through a military code book, some kids' stuff, and a history of cryptography through the ages. I found some good codes, but nobody seems to've thought of this punctuation code. Ever see the Confederate cipher? Boy, it's a real dazzler—wasn't cracked until after the Civil War was over! The old Greeks wound strips of paper around identical sticks. When they were unrolled, the strips were gibberish; around the sticks, the words fell right into order."

"Cut it out," the editor snapped. "Did you find anything useful?"

"Sure. Everybody says the big clue is the table of frequency—the letters used more often than others. But, on the other hand, they say that in short messages, like ours, important clues like the single words 'a' and 'I,' bigrams like 'am,' 'as,' and even trigrams like 'the' or 'but,' are often omitted entirely."

"Well, that's fine. What're you going to do now?"

"I don't know. Try the cops after all, I guess."

"Nothing doing," the editor said firmly. "Ask a librarian to help."

Gilroy seized the inspiration. He slammed down the receiver and strode to the reference desk.

"Where can I get hold of somebody who knows cryptograms?" he rasped.

The attendant politely consulted his colleagues. "The guard of the manu-

script room is pretty good," he said, returning. "Down the hall—"

Gilroy shouted his thanks and broke into an ungainly run, ignoring the attendant's order to walk. At the manuscript room he clattered the gate until the keeper appeared and let him in.

"Take a look at this," he commanded, flinging the message on a table.

The keeper glanced curiously at it. "Oh, cryptogram, eh?"

"Yeah. Can you make anything out of it?"

"Well, it looks like a good one," the guard replied cautiously, "but I've been cracking them all for the last twenty years." They sat down at the table in the empty room. For some time the guard stared fixedly at the scrawled note. "Five symbols," he said finally.

"Semicolon, period, comma, colon, quotation marks. Thirteen word units, each with an even number of symbols. They must be used in combinations of two."

"I figured that out already," Gilroy rapped out. "What's it say?"

The guard lifted his head, offended. "Give me a chance. Bacon's code wasn't solved for three centuries."

Gilroy groaned. He did not have so much time on his hands.

"There're only thirteen word units here," the guard went on, undaunted by the Bacon example. "Can't use frequency, bigrams or trigrams."

"I know that already," Gilroy said hoarsely.

"Then why'd you come to me if you're so smart?"

Gilroy hitched his chair away. "O. K., I won't bother you."

"FIVE SYMBOLS to represent twenty-six letters. Can't be. Must be something like the Russian nihilist code. They can represent only twenty-five letters. The missing one is either 'q' or 'j,' most likely, because they're not used much. Well, I'll tell you what I think."

"What's that?" Gilroy demanded, all alert.

"You'll have to reason *a priori*, or whatever it is."

"Any way you want," Gilroy sighed. "Just get on with it."

"The square root of twenty-five is five. Whoever wrote this note must've made a square of letters, five wide and five deep. That sounds right." The guard smiled and nodded cheerfully.

"Possible combinations in a square of twenty-five letters is . . . uh . . .

625. The double symbols must identify the lines down and across. Possible combinations, twenty-five. Combinations all told . . . hm-m-m . . . 15,625.

Not so good. If there's a key word, we'll have to search the dictionary until we find it. Possible combinations, 15,625 multiplied by the English vocabulary—that is, if the key word is English."

Gilroy raised himself to his feet. "I can't stand it," he moaned. "I'll be back in an hour."

"No, don't go," the guard said. "You've been helping me a lot. I don't think we'll have to go through more than 625 combinations at the most. That'll take no time at all."

He spoke, of course, in relative terms. Bacon code, three centuries; Confederate code, fifteen years; war-time Russian code, unsolved. Cryptographers must look forward to eternity.

Gilroy seated himself, while the guard plotted a square:

;	"	,	.	:	
a	b	c	d	e	;
f	g	h	i	j	"
k	l	m	n	o	,
p	r	s	t	u	.
v	w	x	y	z	:

The first symbol combination, two semicolons, translated to "a," by reading down the first line, from the top

semicolon, and across from the side semicolon. The next, a semicolon and a comma, read "k." He went on in this fashion until he screwed up his face and pushed the half-completed translation to Gilroy. It read:

"akdd kyoiztou kp tbo eztztkprepd"  
 "Does it make sense to you?" he asked anxiously.

Gilroy strangled, unable to reply.

"It could be Polish," the guard explained, "or Japanese."

The harassed reporter fled.

When he returned an hour later, after having eaten and tramped across town, nervously chewing cigarettes, he found the guard defended from him by a breastwork of heaped papers.

"Does it look any better?" Gilroy asked hoarsely.

The guard was too absorbed to look up or answer. By peering over his shoulder, Gilroy saw that he had plotted another square. The papers on the table were covered with discarded letter keys; at a rough guess, Gilroy estimated that the keeper had made over a hundred of them.

The one he was working with had been formed as the result of methodical elimination. His first square, the guard had kept, changing the positions of the punctuation marks. When that had failed, he altered his alphabet square, tried that, and reversed his punctuation marks once more. Patient and plodding the guard had formed this square:

,	.	;	"	:
z	u	o	j	e
y	t	n	i	d
x	s	m	h	c
w	r	l	g	b
v	p	k	f	a

Without haste, he counted down under the semicolon and across from the side semicolon, stopping at "m." Gilroy followed him, nodding at the result.

He was faster than the old guard at interpreting the semicolon and comma—"o." The period and semicolon, repeated twice, came to "ss". First word: "moss."

Gilroy straightened up and took a deep breath. He bent over again and counted down and across with the guard, through the whole message, which the old man had lined off between every two symbols. Completed, it read:

;;|;|:|:| |;|:|:|."::|:|:|:| |;|:  
 m o s s o p e r a t e d o n

..|":|:| |:|:|:|:|:|:|:|:|:|:|:|:|:|:  
 t h e c a t a t o n i c s

..|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:|:  
 t a l b o t i s f i n a n c

".|:|""| "":|:|:| |:|:|:|:|:|:|:|:|:|:  
 i n g h i m p r o t e c t

;;|:| "":|:|:|:|:|:|:|:|:|:|:|:|:|:  
 m e f r o m t h e m

"Hm-m-m," the guard mused. "That makes sense, if I knew what it meant."

But Gilroy had snatched the papers out of his hand. The gate clanged shut after him.

Returning to the office in a taxi, Gilroy was not too joyful. He rapped on the inside window. "Speed it up! I've seen the sights."

He thought, if the dog's been bumped off, good-by catatonic story! The dog was his only link with the code writer.

## IX.

WOOD SLUNK along the black, narrow alleys behind the wholesale fruit markets on West Street. Battered cans and crates of rotting fruit made welcome obstacles and shelters if Talbot's gangsters were following him.

He knew that he had to get away from the river section. The gangsters must

have definitely recognized him; they would call Talbot's headquarters for greater forces. With their speedy cars they could patrol the borders of the district he was operating in, and close their lines until he was trapped.

More important was the fact that reporters had been sent out to search for him. Whether or not his simple code had been deciphered did not matter very much; the main thing was that Gilroy at last knew he was trying to communicate with him.

Wood's unerring animal sense of direction led him through the maze of densely shadowed alleys to a point nearest the newspaper office. He peered around the corner, up and down the street. The black gang car was out of sight. But he had to make an unprotected dash of a hundred yards, in the full glare of the street lights, to the building entrance.

His powerful leg muscles gathered. He sped over the hard cement sidewalk. The entrance drew nearer. His legs pumped more furiously, shortening the dangerous space more swiftly than a human being could; and for that he was grateful.

He glimpsed a man standing impatiently at the door. At the last possible moment, Wood checked his rush and flung himself toward the thick glass plate.

"There you are!" the editor cried. "Inside—quick!"

He thrust open the door. They scurried inside and commandeered an elevator, ran through the newsroom to the editor's office.

"Boy, I hope you weren't seen! It'd be curtains for both of us."

The editor squirmed uneasily behind his desk, from time to time glancing disgruntledly at his watch and cursing Gilroy's long absence. Wood stretched out on the cold floor and panted. He had expected his note to be deciphered by then, and even hoped to be recog-

nized as a human being in a dog's body. But he realized that Gilroy probably was still engaged in decoding it.

At any rate he was secure for awhile. Before long, Gilroy would return; then his story would be known. Until then he had patience.

Wood raised his head and listened. He recognized Gilroy's characteristic pace that consumed at least four feet at a step. Then the door slammed open and shut behind the reporter.

"The dog's here, huh? Wait'll you take a look at what I got!"

He threw a square of paper before the editor. Wood scanned the editor's face as he eagerly read it. He ignored the vast hamburger that Gilroy unwrapped for him. He was bewildered by Gilroy's lack of more than ordinary interest in him; but perhaps the editor would understand.

"So that's it! Moss and Talbot, eh? It's getting a lot clearer."

"I get Moss' angle," Gilroy said. "He's the only guy around here who could do an operation like that. But Talbot—I don't get his game. And who sent the note—how'd he get the dope—where is he?"

Wood almost went mad with frustration. He could explain; he knew all there was to be known about Talbot's interest in Moss's experiment. The problem of communication had been solved. Moss and Talbot were exposed; but he was as far as ever from regaining his own body.

He had to write another cipher message—longer, this time, and more explicit, answering the questions Gilroy raised. But to do that—He shivered. To do that, he would have to run the gang patrol; and his enciphering square was in the corner of a lot. It would be too dark—

"We've got to get him to lead us to the one who wrote the message," Gilroy said determinedly. "That's the only way we can corner Moss and Talbot.

Like this, all we have is an accusation and no legal proof."

"He must be around here somewhere."

GILROY fastened his eyes on Wood. "That's what I think. The dog came here and barked, trying to get us to follow him. When we chased him out, he came back with a scrawled note about a half hour later. Then he brought the code message within another hour. The writer must be pretty near here. After the dog eats, we'll—" He gulped audibly and raised his bewildered gaze to the editor. Swiftly, he slipped off the edge of the desk and fumbled in the long hair on Wood's neck. "Look at that, chief—a piece of surgical plaster. When the dog bent his head to eat, the hair fell away from it."

"And you think he's a catatonic." The editor smiled pityingly and shook his head. "You're jumpy, Gilroy."

"Maybe I am. But I'd like to see what's under the plaster."

Wood's heart pumped furiously. He knew that his incision was the precise duplicate of the catatonics', and if Gilroy could see it, he would immediately understand. When Gilroy picked at the plaster, he tried to bear the stabbing pain; but he had to squirm away. The wound was raw and new, and the deeply rooted hair was firmly glued to the plaster. He permitted Gilroy to try again. The sensation was far too fierce; he was afraid the incision would rip wide open.

"Stop it," the editor said squeamishly. "He'll bite you."

Gilroy straightened up. "I could take it off with some ether."

"You don't really think he was operated on, do you? Moss doesn't operate on dogs. He probably got into a fight, or one of Talbot's torpedoes creased him with a bullet."

The telephone bell rang insistently. "I'd still like to see what's under it," Gilroy said as the editor removed the

receiver. Wood's hopes died suddenly. He felt that he was to blame for resisting Gilroy.

"What's up, Blaine?" the editor asked. He listened absorbedly, his face darkening. "O. K. Stay away if you don't want to take a chance. Phone your story in to the rewrite desk." He replaced the receiver and said to Gilroy: "Trouble, plenty of it. Talbot's gang cars are cruising around this district. Blaine was afraid to run them. I don't know how you're going to get the dog through."

Wood was alarmed. He left his meal unfinished and agitated toward the door, whimpering involuntarily.

Gilroy glanced curiously at him. "I'd swear he understood what you said. Did you see the change that came over him?"

"That's the way they react to voices," the editor said.

"Well, we've got to get him to his master." Gilroy mused, biting the inside of his cheek. "I can do it—if you're in with me."

"Of course I am. How?"

"Follow me." Wood and the editor went through the newsroom on the cadaverous reporter's swift heels. In silence they waited for an elevator, descended to the lobby. "Wait here beside the door," Gilroy said. "When I give the signal, come running."

"What signal?" the editor cried, but Gilroy had loped into the street and out of sight.

They waited tensely. In a few minutes a taxi drew up to the curb and Gilroy opened the door, sitting alertly inside. He watched the corner behind him. No one moved for a long while; then a black gang car rode slowly and vigilantly past the taxi. An automatic rifle barrel glinted in the yellow light. Gilroy waited until a moment after it turned into West Street. He waved his arms frantically.

The editor scooped Wood up in his



arms, burst open the door, and darted across the sidewalk into the cab.

"Step on it!" Gilroy ordered harshly. "Up West Street!"

THE TAXI accelerated suddenly. Wood crouched on the floor, trembling, in despair. He had exhausted his ingenuity and he was as far as ever from regaining his body. They expected him to lead them to his master; they still did not realize that he had written the message. Where should he lead them—how could he convince them that he was the writer?

"I think this is far enough," Gilroy broke the silence. He tapped on the window. The driver stopped. Gilroy and the editor got out, Wood following indecisively. Gilroy paid and waved the driver away. In the quiet isolation of the broad commercial highway, he bent his great height to Wood's level. "Come on, boy!" he urged. "Home!"

Wood was in a panic of dismay. He could think of only one place to lead them. He set off at a slow trot that did not tax them. Hugging the walls, sprinting across streets, he headed cautiously downtown.

They followed him behind the markets fronting the highway, over a hemmed-in lot. He picked his way around the deep, treacherous foundation of a building that had been torn down, up and across piles of rubbish, to a black-shadowed clearing at the lot's end. He halted passively.

Gilroy and the editor peered around into the blackness. "Come out!" Gilroy called hoarsely. "We're your friends. We want to help you."

When there was no response, they explored the lot, lighting matches to illuminate dark corners of the foundation. Wood watched them with confused emotions. By searching in the garbage heaps and the crumbling walls of the foundation, they were merely wasting time.

As closely as possible in the dark, he located the site of his enciphering square. He stood near it and barked clamorously. Gilroy and the editor hastily left their futile prodding.

"He must've seen something," the editor observed in a whisper.

Gilroy cupped a match in his hand and moved the light back and forth in the triangular corner of the cleared space. He shrugged.

"Not around there," the editor said. "He's pointing at the ground."

Gilroy lowered the match. Before its light struck the ground, he yelped and dropped it, waving his burned fingers in the cool air. The editor murmured sympathy and scratched another match.

"Is this what you're looking for—a lot of letters in a square?"

Wood and Gilroy crowded close. The reporter struck his own match. In its light he narrowly inspected the crudely scratched encoding square.

"Be back in a second," he said. It was too dark to see his face, but Wood heard his voice, harsh and strained. "Getting flashlight."

"What'll I do if the guy comes around?" the editor asked hastily.

"Nothing," Gilroy rasped. "He won't. Don't step on the square."

Gilroy vanished into the night. The editor struck another match and scrutinized the ground with Deerslayer thoroughness.

"What the hell did he see?" he pondered. "That guy—" He shook his head defeatedly and dropped the match.

Never in his life had Wood been so passionately excited. What *had* Gilroy discovered? Was it merely another circumstantial fact, like his realization that Talbot's gangsters were gunning for Wood; or was it a suspicion of Wood's identity? Gilroy had replied that the writer would not reappear, but that could have meant anything or nothing. Wood frantically searched for a way of finally demonstrating who he really was.

He found only a negative plan—he would follow Gilroy's lead.

With every minute that passed, the editor grew angrier, shifting his leaning position against the brick wall, pacing around. When Gilroy came back, flashing a bright cone of light before him, the editor lashed out.

"Get it over with, Gilroy. I can't waste the whole night. Even if we do find out what happened, we can't print it—"

GILROY IGNORED HIM. He splashed the brilliant ray of his huge five-celled flashlight over the enciphering square.

"Now look at it," he said. He glanced intently at Wood, who also obeyed his order and stood at the editor's knee, searching the ground. "The guy who made that square was very cautious—he put his back to the wall and faced the lot, so he wouldn't be taken by surprise. The square is upside-down to us. No, wait!" he said sharply as the editor moved to look at the square from its base. "I don't want your footprints on it. Look at the bottom, where the writer must've stood."

The editor stared closely. "What do you see?" he asked puzzledly.

"Well, the ground is moist and fairly soft. There should be footprints. There are. *Only they're not human!*"

Raucously, the editor cleared his throat. "You're kidding."

"*Gestalt*," Gilroy said, almost to himself, "the whole is greater than the sum of its parts. You get a bunch of unconnected facts, all apparently unrelated to each other. Then suddenly one fact pops up—it doesn't seem any more important than the others—but all at once the others click into place, and you get a complete picture."

"What are you mumbling about?" the editor whispered anxiously.

Gilroy stooped his great height and picked up a yellow stump of pencil. He

turned it over in his hand before passing it to the editor.

"That's the pencil this dog snatched before we threw him out. You can see his teethmarks on the sides, where he carried it. But there're teethmarks around the unsharpened end. Maybe I'm nuts—" He took the dirty code message out of his inside breast pocket and smoothed it out. "I saw these smudges the minute I looked at the note, but they didn't mean anything to me then. What do you make of them?"

The editor obediently examined the note in the glare of the flash. "They could be palmprints."

"Sure—a baby's," Gilroy said witheringly. "Only they're not. We both know they're pawprints, the same as are at the bottom of the square. You know what I'm thinking. Look't the way the dog is listening."

Without raising his voice, he half turned his head and said quite casually, "Here comes the guy who wrote the note, right behind the dog."

Involuntarily, Wood spun around to face the dark lot. Even his keen animal eyes could detect no one in the gloom. When he lifted his gaze to Gilroy, he stared full into grim, frightened eyes.

"Put that in your pipe," Gilroy said tremulously. "That's his reaction to the pitch of my voice, eh? You can't get out of it, chief. We've got a werewolf on our hands, thanks to Moss and Talbot."

Wood barked and frisked happily around Gilroy's towering legs. He had been understood!

But the editor laughed, a perfectly normal, humorous, unconvinced laugh. "You're wasting your time writing for a newspaper, Gilroy—"

"O. K., smart guy," Gilroy replied savagely. "Stop your cackling and tell me the answer to this—"

"The dog comes into the newsroom and starts barking. I thought he was just trying to get us to follow him; but

I never heard a dog bark in long and short yelps before. He ran up the stairs, right past all the other floors—business office, advertising department, and so on—to the newsroom, because that's where he wanted to go. We chased him out. He came back with a scrawled note, saying: 'I am a man.' Those

four words took up the whole page. Even a kid learning how to write wouldn't need so much space. But if you hold the pencil in your mouth and try to connect the bars of the letters, you'd have letters something like the ones on the note.

"He needed a smaller system of let-



*Talbot stared at the dog, then shrank back, tearing at his chest, a look of horror growing on his face.*

ters, so he made up a simple code. But he'd lost his pencil. He stole one of ours. Then he came back, watching out for Talbot's gang cars.

"There aren't any footprints at the bottom of this square—only a dog's paw-prints. And there're two smudges on the message, where he put his paws to hold down the paper while he wrote on it. All along he's been listening to every word we said. When I said in a conversational tone that the writer was standing behind him, he whirled around. Well?"

THE EDITOR was still far from convinced. "Good job of training—"

"For a guy I used to respect, you certainly have the brain of a flea. Here—I don't know your name," he said to Wood. "What would you do if you had Moss here?"

Wood snarled.

"You're going to tell us where to find him. I don't know how, but you were smart enough to figure out a code, so you can figure out another way of communicating. Then you'll tell us what happened."

It was Wood's moment of supreme triumph. True, he didn't have his body yet, but now it was only a matter of time. His joy at Gilroy's words was violent enough to shake even the editor's literal, unimaginative mind.

"You still don't believe it," Gilroy accused.

"How can I?" the editor cried plaintively. "I don't even know why I'm talking to you as if it could be possible."

Gilroy probed in a pile of rubbish until he uncovered a short piece of wood. He quickly drew a single line of small alphabetical symbols. He threw the stick away, stepped back and flashed the light directly at the alphabet. "Now spell out what happened."

Wood sprang back and forth before the alphabet, stopping at the letters he

required and indicating them by pointing his snout down.

"T-a-l-b-o-t w-a-n-t-e-d a y-o-u-n-g h-e-a-l-t-h-y b-o-d-y M-o-s-s s-a-i-d h-e c-o-u-l-d g-i-v-e i-t t-o h-i-m—"

"Well, I'll be damned!" the editor blurted.

After that exclamation there was silence. Only the almost inaudible padding of Wood's paws on the soft ground, his excited panting, and the hoarse breathing of the men could be heard. But Wood had won!

## X.

GILROY SAT at the typewriter in his apartment; Wood stood beside his chair and watched the swiftly leaping keys; but the editor stamped nervously up and down the floor.

"I've wasted half the night," he complained, "and if I print this story I'll be canned. Why, damn it, Gilroy—How do you think the public'll take it if I can't believe it myself?"

"Hm-m-m," Gilroy explained.

"You're sacrificing your job. You know that, don't you?"

"It doesn't mean that much to me," Gilroy said without glancing up. "Wood has to get back his body. He can't do it unless we help him."

"Doesn't that sound ridiculous to you? 'He has to get back his body.' Imagine what the other papers'll do to that sentence!"

Gilroy shifted impatiently. "They won't see it," he stated.

"Then why in hell are you writing the story?" the editor asked, astounded. "Why don't you want me to go back to the office?"

"Quiet! I'll be through in a minute." He inserted another sheet of paper and his flying fingers covered it with black, accusing words. Wood's mouth opened in a canine grin when Gilroy smiled down at him and nodded his head con-

sidently. "You're practically walking around on your own feet, pal. Let's go."

He flapped on his coat and carelessly dropped a battered hat on his craggy head. Wood braced himself to dart off. The editor lingered.

"Where're we going?" he asked cautiously.

"To Moss, naturally, unless you can think of a better place."

Wood could not tolerate the thought of delay. He tugged at the leg of the editor's pants.

"You bet I can think of a better place. Hey, cut it out, Wood—I'm coming along. But, hell, Gilroy! It's after ten. I haven't done a thing. Have a heart and make it short."

With Gilroy hastening him by the arm and Wood dragging at his leg, the editor had to accompany them, though he continued his protests. At the door, however, he covered Wood while Gilroy hailed a taxi. When Gilroy signed that the street was clear, he ran across the sidewalk with Wood bundled in his arms.

Gilroy gave the address. At its sound, Wood's mouth opened in a silent snarl. He was only a short distance from Moss, with two eloquent spokesmen to articulate his demands, and, if necessary, to mobilize public opinion for him! What could Moss do against that power?

They rode up Seventh Avenue and along Central Park West. Only the editor felt that they were speeding. Gilroy and Wood fretted irritably at every stop signal.

At Moss' street, Gilroy cautioned the driver to proceed slowly. The surgeon's house was guarded by two loitering black cars.

"Let us out at the corner," Gilroy said.

They scurried into the entrance of a rooming house.

"Now what?" the editor demanded. "We can't fight past them."

"How about the back way, Wood?"

Wood shook his head negatively. There was no entrance through the rear.

"Then the only way is across the roofs," Gilroy determined. He put his head out and scanned the buildings between them and Moss. "This one is six stories, the next two five, the one right next to Moss' is six, and Moss' is three. We'll have to climb up and down fire escapes and get in through Moss' roof. Ready?"

"I suppose so," the editor said fatalistically.

Gilroy tried the door. It was locked. He chose a bell at random and rang it vigorously. There was a brief pause; then the tripper buzzed. He thrust open the door and burst up the stairs, four at a leap.

"Who's there?" a woman shouted down the stair well.

They galloped past her. "Sorry lady," Gilroy called back. "We rang your bell by mistake."

She looked disappointed and rather frightened; but Gilroy anticipated her emotion. He smiled and gayly waved his hand as he loped by.

THE ROOF DOOR was locked with a stout hook that had rusted into its eye. Gilroy smashed it open with the heel of his palm. They broke out onto a tarred roof, chill and black in the overcast, threatening night.

Wood and Gilroy discovered the fire escape leading to the next roof. They dashed for it. Gilroy tucked Wood under his left arm and swung himself over the anchored ladder.

"This is insane!" the editor said hoarsely. "I've never done such a crazy thing in my life. Why can't we be smart and call the cops?"

"Yeah?" Gilroy sneered without stopping. "What's your charge?"

"Against Moss? Why—"

"Think about it on the way."

Gilroy and Wood were on the next roof, waiting impatiently for the editor to descend. He came down quickly but his thoughts wandered.

"You can charge him with what he did. He made a man into a dog."

"That would sound swell in the indictment. Forget it. Just walk lightly. This damned roof creaks and lets out a noise like a drum."

They advanced over the tarred sheets of metal. Beneath them, they could hear their occasionally heavy tread resound through hollow rooms. Wood's claws tapped a rhythmic tattoo.

They straddled over a low wall dividing the two buildings. Wood sniffed the air for enemies lurking behind chimneys, vents and doors. At instants of suspicion, Gilroy briefly flashed his light ahead. They climbed up a steel ladder to the six-story building adjoining Moss'.

"How about a kidnap charge?" the editor asked as they stared down over the wall at the roof of Moss' building.

"Please don't annoy me. Wood's body is in the observation ward at the hospital. How're you going to prove that Moss kidnaped him?"

The editor nodded in the gloom and searched for another legal charge. Gilroy splashed his light over Moss' roof. It was unguarded.

"Come on, Wood," he said, inserting the flashlight in his belt. He picked up Wood under his left arm. In order to use his left hand in climbing, he had to squeeze Wood's middle in a strangle hold.

The only thing Wood was thankful for was that he could not look at the roof three stories below. Gilroy held him securely, tightly enough for his breath to struggle in whistling gasps. His throat knotted when Gilroy gashed his hand on a sharp sliver of dry paint scale.

"It's all right," Gilroy hissed reassuringly. "We're almost there."

Above them, he saw the editor clambering heavily down the insecurely bolted ladder. Between the anchoring plates it groaned and swayed away from the unclean brick wall. Rung by rung they descended warily, Gilroy clutching for each hold, Wood suspended in space and helpless—both feeling their hearts drop when the ladder jerked under their weight.

Then Gilroy lowered his foot and found the solid roof beneath it. He grinned impetuously in the dark. Wood writhed out of his hold. The editor cursed his way down to them.

He followed them to the rear fire escape. This time he offered to carry Wood down. Swinging out over the wall, Wood felt the editor's muscles quiver. Wood had nothing but a miserable animal life to lose, and yet even he was not entirely fearless in the face of the hidden dangers they were braving. He could sympathize with the editor, who had everything to lose and did not wholly believe that Wood was not a dog. Discovering a human identity in an apparently normal collie must have been a staggeringly hard fact for him to swallow.

He set Wood down on the iron bars. Gilroy quickly joined them, and yanked fiercely at the top window. It was locked.

"Need a jimmy to pry it open," Gilroy mused. He fingered the edges of the frame. "Got a knife on you?"

The editor fished absent-mindedly through his pockets. He brought out a handful of keys, pencil stubs, scraps of paper, matches, and a cheap sheathed nail file. Gilroy snatched the file.

He picked at the putty in the ancient casement with the point. It chipped away easily. He loosened the top and sides.

"Now," he breathed. "Stand back a



little and get ready to catch it."

He inserted the file at the top and levered the glass out of the frame. It stuck at the bottom and sides, refusing to fall. He caught the edges and lifted it out, laying it down noiselessly out of the way.

"Let's go." He backed in through the empty casement. "Hand Wood through."

They stood in the dark room, under the same roof with Moss. Wood exultantly sensed the proximity of the one man he hated—the one man who could return his body to him. "Now!" he thought. "Now!"

"Gilroy," the editor urged, "we can charge Moss with vivisection."

"That's right," Gilroy whispered. But they heard the doorknob rattle in his hand and turn cautiously.

"Then where're you going?" the editor rasped in a panic.

"We're here," Gilroy replied coolly. "So let's finish it."

The door swung back; pale weak light entered timidly. They stared down the long, narrow, dismal hall to the stairs at the center of the house. Down those stairs they would find Moss—

Wood's keen animal sense of smell detected Moss' personal odor. The surgeon had been there not long before.

## XI.

HE CROUCHED around the stair-head and cautiously lowered himself from step to step. Gilroy and the editor clung to banister and wall, resting the bulk of their weight on their hands. They turned the narrow spiral where Clarence had fatally encountered the sharpness of Wood's fangs, down to the hall floor where his fat body had sprawled in blood.

Distantly, Wood heard a cane tap nervously, momentarily; then it stopped at a heated, hissed command that

scarcely carried even to his ears. He glanced up triumphantly at Gilroy, his deep eyes glittering, his mouth grinning savagely, baring the red tongue lolling in the white, deadly trap of fangs. He had located and identified the sounds. Both Moss and Talbot were in a room at the back of the house—

He hunched his powerful shoulders and advanced slowly, stiff-legged, with the ominous air of all meat hunters stalking prey from ambush. Outside the closed door he crouched, muscles gathered for the lunge, his ears flat back along his pointed head to protect them from injury. But they heard muffled voices inaudible to men's dulled senses.

"Sit down, doc," Talbot said. "The truck'll be here soon."

"I'm not concerned with my personal safety," Moss replied tartly. "It's merely that I dislike inefficiency, especially when you claim—"

"Well, it's not Jake's fault. He's coming back from a job."

Wood could envision the faint sneer on Moss' scrubbed pink face. "You'll collapse any minute within the next six months, but the acquisitive nature is as strong as ever in you, isn't it, Talbot? You couldn't resist the chance of making a profit, and at a time like this!"

"Oh, don't lose your head. The cat-whatever-you-call-it can't talk and the dog is probably robbing garbage cans. What's the lam for?"

"I'm changing my residence purely as a matter of precaution. You underestimate human ingenuity, even limited by a dog's inarticulateness."

Wood grinned up at his comrades. The editor was dough-faced, rigid with apprehension. Gilroy held a gun and his left hand snaked out at the doorknob. The editor began an involuntary motion to stop him. The door slammed inward before he completed it.

Wood and Gilroy stalked in, sinister in their grim silence. Talbot merely

glanced at the gun. He had stared into too many black muzzles to be frightened by it. When his gaze traveled to Wood his jaw fell and hung open, trembling senilely. His constantly fighting lungs strangled. He screamed, a high, tortured wail, and tore frantically at his shirt, trying to release his chest from crushing pressure.

"An object lesson for you, Talbot," Moss said without emotion. "Do not underestimate an enemy."

Gilroy lost his frigid attitude. "Don't let him strangle. Help him."

"What can I do?" Moss shrugged. "It's angina pectoris. Either he pulls out of the convulsions by himself—or he doesn't. I can't help. But what did you want?"

No one answered him. Horrified, they were watching Talbot go purple in his death agony, lose the power of shrieking, and tear at his chest. Gilroy's gun hand was limp; yet Moss made no attempt to escape. The air rattled through Talbot's predatory nose. He fell in a contorted heap.

Wood felt sickened. He knew that in self-preservation doctors had to harden themselves, but only a monster of brutal callousness could have disregarded Talbot's frightful death as if it had not been going on.

"Oh, come now, it isn't as bad as all that," Moss said acidly.

Wood raised his shocked stare from the rag-doll body to Moss' hard, unfearful eyes. The surgeon had made no move to defend himself, to call for help from the squad of gangsters at the front of the house. He faced them with inhuman prepossession.

"It upsets your plans," Gilroy spat.

Moss lifted his shoulders, urbanely, delicately disdainful. "What difference should his death make to me? I never cared for his company."

"Maybe not, but his money seemed to smell O. K. to you. He's out of the

picture. He can't keep us from printing this story now." Gilroy pulled a thin folded typescript from his inside breast pocket and shoved it out at Moss.

THE SURGEON read it interestingly, leaning casually against a wall. He came to the end of the short article and read the lead paragraph over again. Politely, he gave it back to Gilroy.

"It's very clear," he said. "I'm accused of exchanging the identities of a man and a dog. You even describe my alleged technique."

"Alleged!" Gilroy roared savagely. "You mean you deny it?"

"Of course. Isn't it fantastic?" Moss smiled. "But that isn't the point. Even if I admitted it, how do you think I could be convicted on such evidence? The only witness seems to be the dog you call Wood. Are dogs allowed to testify in court? I don't remember, but I doubt it."

Wood was stunned. He had not expected Moss to brazen out the charge. An ordinary man would have broken down, confronted by their evidence.

Even the shrinking editor was stung into retorting: "We have proof of criminal vivisection!"

"But no proof that I was the surgeon."

"You're the only one in New York who could've done that operation."

"See how far that kind of evidence will get you."

Wood listened with growing anger. Somehow they had permitted Moss to dominate the situation, and he parried their charges with cool, sarcastic deftness. No wonder he had not tried to escape! He felt himself to be perfectly safe. Wood growled, glowering hatred at Moss. The surgeon looked down contemptuously.

"All right, we can't convict you in court," Gilroy said. He hefted his gun, tightening his finger on the trigger.

"That's not what we want, anyhow. This little scientific curiosity can make you operate on Wood and transfer his identity back to his own body."

Moss' expression of disdain did not alter. He watched Gilroy's tensing trigger finger with an astonishing lack of concern.

"Well, speak up," Gilroy rasped, waving the gun ominously.

"You can't force me to operate. All you can do is kill me, and I am as indifferent to my own death as I was to Talbot's." His smile broadened and twisted down at the corners, showing his teeth in a snarl that was the civilized, overrefined counterpart of Wood's. "Your alleged operation interests me, however. I'll operate for my customary fee."

The editor pushed Gilroy inside and hurriedly closed the door. "They're coming," he chattered. "Talbot's gangsters."

In two strides Gilroy put Moss between him and the door. His gun jabbed rudely into Moss' unflinching back. "Get over on the other side, you two, so the door'll hide you when it swings back," he ordered.

Wood and the editor retreated. Wood heard steps along the hall, then a pause, and a harsh voice shouted: "Hey, boss! Truck's here."

"Tell them to go away," Gilroy said in a low, suppressed tone.

Moss called, "I'm in the second room at the rear of the house."

Gilroy viciously stabbed him with the gun muzzle. "You're asking for it. I said tell them to go away!"

"You wouldn't dare to kill me until I've operated—"

"If you're not scared, why do you want them? What's the gas?"

The door flung open. A gangster started to enter. He stiffened, his keen, battle-trained eyes flashing from Talbot's twisted body to Moss, and to Gil-

roy, standing menacingly behind the surgeon. In a swift, smooth motion a gun leaped from his armpit holster.

"What happened to the boss?" he demanded hoarsely. "Who's he?"

"Put your gun away, Pinero. The boss died of a heart attack. That shouldn't surprise you—he was expecting it any day."

"Yeah, I know. But how'd that guy get in?"

Moss stirred impatiently. "He was here all along. Send the truck back. I'm not moving. I'll take care of Talbot."

The gangster looked uncertain, but, in lieu of another commander, he obeyed Moss' order. "Well, O. K. if you say so." He closed the door.

When Pinero had gone down the hall, Moss turned to face Gilroy.

"You're not scared—much!" Gilroy said.

MOSS IGNORED his sarcastic outburst. "Where were we?" he asked. "Oh, yes. While you were standing there shivering, I had time to think over my offer. I'll operate for nothing."

"You bet you will!" Gilroy wagged his gun forcefully.

Moss sniffed at it. "That has nothing to do with my decision. I have no fear of death, and I'm not afraid of your evidence. If I do operate, it will be because of my interest in the experiment." Wood intercepted Moss' speculative gaze. It mocked, hardened, glittered sinisterly. "But, of course," Moss added smoothly, "I will definitely operate. In fact, I insist on it!"

His hidden threat did not escape Wood. Once he lay under Moss' knife it would be the end. A slip of the knife—a bit of careful carelessness in the gas mixture—a deliberately caused infection—and Moss would clear himself of the accusation by claiming he could not perform the operation, and therefore

was not the vivisectionist. Wood recoiled, shaking his head violently from side to side.

"Wood's right," the editor said. "He knows Moss better. He wouldn't come out of the operation alive."

Gilroy's brow creased in an uneasy frown. The gun in his hand was a futile implement of force; even Moss knew he would not use it—could not, because the surgeon was only valuable to them alive. His purpose had been to make Moss operate. Well, he thought, he had accomplished that purpose. Moss offered to operate. But all four knew that under Moss' knife, Wood was doomed. Moss had cleverly turned the victory to utter rout.

"Then what the hell'll we do?" Gilroy exploded savagely. "What do you say, Wood? Want to take the chance, or keep on in a dog's body?"

Wood snarled, backing away.

"At least, he's still alive," the editor said fatalistically.

Moss smiled, protesting with silken mockery that he would do his best to return Wood's body.

"Barring accidents," Gilroy spat. "No soap, Moss. He'll get along the way he is, and you're going to get yours."

He looked grimly at Wood, jerking his head significantly in Moss' direction.

"Come on, chief," he said, guiding the editor through the door and closing it. "These old friends want to be alone—lot to talk over—"

Instantly, Wood leaped before the door and crouched there menacingly, glaring at Moss with blind, vicious hatred. For the first time, the surgeon dropped his pose of indifference. He inched cautiously around the wall toward the door. He realized suddenly that this was an animal—

Wood advanced, cutting off his line of retreat. Mane bristling, head lowered ominously between blocky shoulders, bright gums showing above white

curved fangs, Wood stalked over the floor, stiff-jointed, in a low, inexorably steady rhythm of approach.

Moss watched anxiously. He kept looking up at the door in an agony of longing. But Wood was there, closing the gap for the attack. He put up his hands to thrust away—

And his nerve broke. He could not talk down mad animal eyes as he could a man holding a gun. He darted to the side and ran for the door.

Wood flung himself at the swiftly pumping legs. They crashed against him, tripped. Moss sprawled face down on the floor. He crossed his arms under his head to protect his throat.

Wood slashed at an ear. It tore, streaming red. Moss screeched and clapped his hands over his face, trying to rise without dropping his guard. But Wood ripped at his fingers.

The surgeon's hands clawed out. He was kneeling, defenseless, trying to fight off the rapid, aimed lunges—and those knifelike teeth—

Wood gloated. A minute before, the scrubbed pink face had been aloof, sneering. Now it bobbed frantically at his eye level, contorted with overpowering fear, blood flowing brightly down the once scrupulously clean cheeks.

For an instant, the pale throat gleamed exposed at him. It was soft and helpless. He shot through the air. His teeth struck at an angle and snatched—The white flesh parted easily. But a bony structure snapped between his jaws as he swooped by.

Moss knelt there after Wood had struck. His pain-twisted face gaped imbecilically, hands limp at his sides. His throat poured a red flood. Then his face drained to a ghastly lack of color and he pitched over.

He had lost, but he had also won. Wood was doomed to live out his life in a dog's body. He could not even expect to live his own life span. The

average life of a dog is fifteen years. Wood could expect perhaps ten years more.

## XII.

IN HIS HUMAN body, Wood had found it difficult to find a job. He had been a code expert; but code experts, salesmen and apprentice workmen have no place in a world of shrinking markets. The employment agencies are glutted with an oversupply of normal human intelligences housed in strong, willing, expert human bodies.

The same normal human intelligence in a handsome collie's body had a greater market value. It was a rarity, a phenomenon to be gaped at after a ticket had been purchased for the privilege.

"Men've always had a fondness for freaks," Gilroy philosophized on their way to the theater where Wood had an engagement. "Mildly amusing freaks are paid to entertain. The really funny ones are given seats of honor and power. Figure it out, Wood. I can't. Once we get rid of our love of freaks and put them where they belong, we'll have a swell world."

The taxi stopped in a side street, at the stage entrance. Lurid red-and-yellow posters, the size of cathedral murals, plastered the theater walls; and from them smirked prettified likenesses of Wood.

"Gosh!" their driver gasped. "Wait'll my kids hear about this. I drove the Talkin' Dog! Gee, is that an honor, or ain't it?"

On all sides, pedestrians halted in awe, taxis stopped with a respectful screech of brakes; then an admiring swarm bore down on him.

"Isn't he *cute*?" women shrieked. "So intelligent-looking!"

"Sure," Wood heard their driver boast proudly, "I drove him down here. What's he like?" His voice lowered confidentially. "Well, the guy with him—his manager, I guess—he was talkin'

to him just as intelligent as I'm talkin' to you. Like he could understand ev'ry word."

"Bet he could, too," a listener said definitely.

"G'on," another theorized. "He's just trained, like Rin-tin-tin, on'y better. But he's smart all right. Wisht I owned him."

The theater-district squad broke through the tangle of traffic and formed a lane to the stage door.

"Yawta be ashamed aychselves," a cop said. "All this over a mutt!"

Wood bared his fangs at the speaker, who retreated defensively.

"Wise guy, huh?" the mob jeered. "Think he can't understand?"

It was a piece of showmanship that Wood and Gilroy had devised. It never failed to find a feeder in the form of an officious policeman and a response from the crowd.

Even in the theater, Wood was not safe from overly enthusiastic admiration. His fellow performers persisted in scratching his unitching back and ears, cooing and burbling in a singularly unintelligent manner.

THE THRILLER that Wood had made in Hollywood was over; and while the opening acts went through their paces, Wood and Gilroy stood as far away from the wings as the theater construction would permit.

"Seven thousand bucks a week, pal," Gilroy mused over and over. "Just for doing something that any mug out in the audience can do twice as easily. Isn't that the payoff?"

In the year that had passed, neither was still able to accustom himself to the mounting figures in their bank book. Pictures, personal appearances, indorsements, highly fictionalized articles in magazines—all at astronomical prices—

But he could never have enough money to buy back the human body he

had starved in.

"O. K., Wood," Gilroy whispered. "We're on."

They were drummed onto the stage with deafening applause. Wood went through his routine perfunctorily. He identified objects that had been named by the theater manager, picking them out of a heap of piled objects.

Ushers went through the aisles, collecting questions the audience had written on slips of paper. They passed them up to Gilroy.

Wood took a long pointer firmly in his mouth and stood before a huge lettered screen. Painfully, he pointed out, letter by letter, the answers to the audience's questions. Most of them asked about the future, market tips, racing information. A few seriously probed his mind.

White light stabbed down at him. Mechanically, he spelled out the simple answers. Most of his bitterness had evaporated; in its place was a dreary defeat, and dull acceptance of his dog's life. His bank book had six figures to the left of the decimal—more than he had ever conceived of, even as a distant Utopian possibility. But no surgeon could return his body to him, or increase his life expectancy of less than ten years.

Sharply, everything was washed out of sight: Gilroy, the vast alphabet screen, the heavy pointer in his mouth, the black

space smeared with pale, gaping blobs of faces, even the white light staring down—

He lay on a cot in a long ward. There was no dreamlike quality of illusion in the feel of smooth sheets beneath and above him, or in the weight of blankets resting on his *outstretched* body.

And independently of the rest of his hand, his *finger* moved in response to his will. Its nail scratched at the sheet, loudly, victoriously.

An interne, walking through the ward, looked around for the source of the gloating sound. He engaged Wood's eyes that were glittering avidly, deep with intelligence. Then they watched the scratching finger.

"You're coming back," the interne said at last.

"I'm coming back," Wood spoke quietly, before the scene vanished and he heard Gilroy repeat a question he had missed.

He knew then that the body-mind was a unit. Moss had been wrong; there was more to identity than that small gland, something beyond the body. The forced division Moss had created was unnatural; the transplanted tissue was being absorbed, remodeled. Somehow, he knew these returns to his natural identity would recur, more and more—till it became permanent—till he became human once more.



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# THE EPHEMERAE



By  
Edmond Hamilton

*The death-drums of a bewildered, frightened race of savages—the Ephemerae—formed the background to the death of a man—and the death of Man's civilization.*

*Man's lifetime was seventy days!*

DISTANT drums began to throb dimly, down in the night-shrouded wilderness of rusting towers that was dead New York. The sound drifted up through the hot, still night into this candlelit room where Kimball Drew sat writing.

It was a big, shadowy and dusty room that had once been his own laboratory here in Manhattan University. The timid light of the single candle on his desk flickered scaredly, throwing a shaking gleam on the woven tungsten suit that covered Kimball's whole head and body except his face.

"B-rroom," throbbed the distant drums, in dull, slow rhythm. "B-rroom—"

Kimball Drew looked up. Through the open window in front of his desk, he could look down into the vast black wilderness of rusting buildings whence came the sound.

A shadow of pity crossed his strong, weary young face as he listened. "Another of the Ephemerae dying," he muttered. "Poor devil . . . a few weeks of life and love and sunshine, and now his little life is over."

He had heard the death drums of the superstitious Ephemerae many times before, accompanying one of their number into eternity. But tonight they seemed heavier.

Kimball rose slowly and walked through the shadowy, untenanted lecture rooms and laboratories until he emerged from the big building. He stood on its steps in the darkness, gazing southward. Around him, dark and lonesome in the starlight, bulked the proud structures of the university. In front of him, sloping downward in the

darkness beyond the campus, stretched the black metropolis.

"B-rroom," muttered the insistent death drums of the Ephemerae, down there.

Numbing heartbreak came into Kimball's heavy, weary young face as he listened. "Children . . . superstitious savages," he whispered. "Everyone on Earth, like that, except Ormond and myself. And it's all my fault—"

His tormented eyes lifted toward the brilliant white star that blazed supernally in Aquila, like a huge, scintillating diamond. And his voice was a thick mutter of tortured self-accusation. "God, why did I let this happen to humanity? Why didn't I save them from it?"

There was no sound except the sluggish sighing of the hot breeze, and the dim, far-off pulsing of the death drums. The old, black sense of guilt, the agonizing self-reproach that had haunted Kimball Drew for two long years, was writhing in his soul tonight as he stared sickly at that blazing white nova that glared over the roofs of dead New York.

That glaring star seemed to him a living thing, looking down gloatingly upon the terrible change it had wrought, winking and twinkling in remote, malign amusement. For it was that far star that had changed the whole race of mankind into—the Ephemerae. Two years before that nova had exploded and had drenched Earth with a flood of hard radiation that had so affected the human genes as to cause a world-wide mutation of the human race.

KIMBALL DREW looked down sickly at the tungsten suit he wore. He and Ross Ormond, his young fellow-

scientist, had escaped the mutation by wearing these ray-proof suits. They had not been changed into Ephemeræ.

"But I ought to have changed and died, like all the rest," Kimball whispered deadily, as he looked down across the vast, black city. "I didn't save the others . . . I should have died with them—"

Then the reaction came, and his haggard face hardened once more in desperate determination. "No, it's better that Ormond and I escaped," he muttered. "With us two left, there's a chance to teach and civilize the Ephemeræ."

*B-rroom! B-rroom!*

The drums of the Ephemeræ were talking on, down in the lightless city. Whispering of the approach of Death, of the shoreless night into which a human soul was slowly and reluctantly slipping. But there was a strange terror also in their thudding rhythm tonight, a quivering fear of something monstrous and unbelievable. Something that couldn't happen, but was happening. Like the pound of a fearful heart, they throbbed.

A vague chill came over Kimball Drew as he listened. The dim horror in that rumbling rhythm reached him and plucked his nerves like harp strings. Something had happened down there, something that had terrified the Ephemeræ.

Then he saw one of the Ephemeræ running up across the dark, weed-grown campus toward him. A full-grown man, a white savage with wild black hair and beard, clothed only in an old pair of breeches. His face was terrified in the starlight.

"Lord!" he cried frantically to Kimball Drew. "The Other God . . . he is dying!"

"Ormond dying?" Kimball repeated stupidly. "That can't be! He was all right a month ago, when I last saw him."

"He dies . . . the Other God dies!" wailed the terrified man. "We

are afraid! What will become of us if the Gods die?"

"Lead me to the Other God—quickly!" Kimball snapped.

The terrified savage turned and started in an unsteady run, back down into the city. Kimball followed, a cold fear clutching at his heart. Had some accident overtaken Ross Ormond? Lord, if that had happened—if the only companion of his own race were taken from him—if he were left completely alone in the world with the Ephemeræ—

The heavy, fearful throb of the death drums came louder to his ears as he followed his savage guide through the dead metropolis. And he could hear a wailing of terror-laden voices, a keening chant of long, falling inflections. Huge black towers of a people dead for two years looked down broodingly on Kimball Drew and his guide as they hurried through the dark, littered streets. Around rusting wrecks of stalled automobiles and busses they hastened, past long rows of looted stores whose shattered windows gaped at them like blind eyes.

The hot, heavy darkness seemed pregnant with something strange and menacing, tonight. The thud and rumble of the drums ahead, the long, plaintive chant, deepened the somberness of mood that weighed down Kimball's soul.

HE FELT as though ghosts were watching him from the black buildings—ghosts of the millions of his race who had inhabited this place before the great mutation had swept them away. Shadowy wraiths who were peering at him from dark rooms, phantoms bitterly watching the man who might have saved them and hadn't.

"The God dies!" came the plaintive wail from close ahead. "The Other God dies . . . and we are lost!"

*B-rroom! Boom!* Loud pulsed the drums in a heavy, terror-laden undertone to the keening chant.

Kimball emerged into a cross street where a big fire burned on the pavement. It was outside a tall, dark apartment building, and in its flickering light sat a crowd of hundreds of the Ephemeræ. Wild white savages, clothed in queerly assorted garments from the looted stores, they squatted in the firelight with all their faces turned toward the entrance of the tall building, and with naked terror on their firelit features.

The Ephemeræ—the butterfly race into which mankind had suddenly been mutated by the radiation from that distant, exploding star! A race that looked outwardly the same as the old human species, but one whose life-processes were hundreds of times accelerated. A race whose life span from birth to senility occupied, not seventy years, but seventy days.

In this terrified crowd of the Ephemeræ, Kimball saw half-grown boys and girls who were only a few days old, crouching fearfully against their mothers. Stalwart young men of three weeks' age, in the prime of life, gripped clubs and spears as though to repel an approaching horror. Aging men two months old, the elders of the tribe, thumped the skin-headed drums to whose throbbing rhythm the others lifted their fearful chant.

As Kimball approached in the shaking red firelight, a hoarse cry went up from the crouching Ephemeræ.

"Lord, the Other God dies!" they cried pleadingly. "Save us . . . doom is upon us!"

"You fear without reason!" Kimball told them loudly. "The Other God cannot die . . . he is immortal, like me. Have we two not lived through many, many of your generations? Did not your grandfathers and their grandfathers know us, as we are now?"

"Yes, lord," sobbed one of the Ephemeræ, "we know that the two gods have lived forever, for all our forefathers, back into the misty generations, have

known and worshiped you. But now we know not what to do, when one of the gods is dying—"

With an impatient exclamation, Kimball strode through the whimpering, wailing throng, past the thudding drums into the building. In the great, shadowy room that had once been a lobby, torches flared on the walls. And two youths of the Ephemeræ, tall striplings a fortnight old, were crouching terrifiedly beside a couch on which lay a thin, wasted form.

"Ormond?" cried Kimball, striding toward the couch. "Is that you?"

There came a cracked whisper from the thin and wasted figure who lay before him. "Yes, Kim—"

Kimball stopped, staggered by the shock of what he saw as he looked down at the figure on the couch. It was Ross Ormond, he saw. But not the blond, good-looking young Ormond he had last seen, not the robust young scientist who had for two years been his companion.

THIS WAS an old man with thin, clawlike hands that plucked nervously at the blanket that covered him. An old, old man with snow-white hair, and a wrinkled, age-seamed face out of which fading blue eyes peered blindly up at Kimball.

"Kim—" that senile figure whispered again, through stiff, cracked lips.

"Ormond!" yelled Kimball hoarsely. "For God's sake, what happened to you? Only a month ago, you were as young as I—"

Then he saw. Ormond was not now wearing the tungsten suit which was the only protection from the deadly stellar radiation that had mutated mankind into an ephemeral race. Ormond had taken the suit off—and had been mutated, like the rest of mankind. Had become one of the Ephemeræ! And had aged with the same swiftness that they did, a year in every day, thirty years in the last month!

"Yes," the aged Ormond was whis-

pering. "I took the suit off. I let the radiation make me one of the Ephemerae. I've lived out half my lifetime in this last month . . . and now I'm dying."

Kimball's haggard face was frozen, as he looked down into the wrinkled, senile features of his friend. Through the frozen silence in this torchlit room stabbed the keening wail of the Ephemerae gathered outside.

"The Other God dies! He dies—" *B-rroom! Boom!*

"Ormond, why did you do it?" Kimball's voice was choked with tears as he bent over the other. "You were the only companion I had, the only other living person of the old race. You're leaving me alone now, with the Ephemerae."

"I know," muttered the dying, senile man. "I'm sorry, Kim, but I couldn't help it. You remember Mara?"

"Mara? That girl of the Ephemerae you married last month?" Kimball repeated. His mind flew back to that night a month before, when Ormond had returned to their quarters in the university with a ragged girl of the Ephemerae clinging to his arm. A scared, eager, pretty girl-savage who had looked up at Ormond with eyes in which awe, worship and love were mingled.

"This is Mara," Ormond had said, his blond young face defiant. "I'm going to marry her."

"You marry one of the Ephemerae?" Kimball had cried dismayedly. "You're mad! You know that in a few weeks this girl will have aged to an old woman, will be dying of senility."

"We'll have a few weeks of happiness, at least," Ormond had muttered. "It's better than this cursed loneliness that's driving me crazy."

"You're quitting on me!" Kimball had accused. "Our work of teaching the Ephemerae—of rekindling human civilization among them—you're giving it up!"

"It's futile, useless," Ormond had de-

clared somberly. "Civilization is gone forever, Kim. No civilization can ever be built up among a people whose whole life span is only a couple of months. We might as well stop trying, and get what happiness we can out of life."

"I'll never stop trying to rebuild civilization, not while I'm alive!" Kimball had declared fiercely.

HE AND ORMOND had parted in anger. And he had not seen Ormond and his girl bride since, though he had known they were living somewhere in the dead metropolis.

"Mara . . . your wife . . . where is she?" he asked of the dying man.

Ormond raised his clawlike hand and pointed to another couch in a shadowed corner. Kimball saw a blanket-shrouded figure on it, the still body of an aged woman whose white hair and one parchmentlike wrist lay uncovered by the blanket.

"That's Mara," Ormond whispered. "She died yesterday. She was very old." He lay, looking up at the ceiling with faded eyes, his thin chest rising and falling jerkily. The two youths beside his couch watched silently, with dumb grief. "The Other God dies!" wailed the plaintive chant from the firelit street. "The God who lived forever dies!"

Steady throbbed the thudding drums out there, beating through the night to Kimball's ears like the fearful heartbeats of the dread-haunted savages.

Ormond was speaking again. A dry, difficult whisper that hardly moved his lips. "It was a week after I married Mara that I took off the tungsten suit, Kim. You see . . . we two were so happy at first. But like all the Ephemerae, she was aging more than a year in every day, and at the end of that first week, she was perceptibly older than I.

"She didn't complain. She said she knew that I was a god and would live forever, while she must grow old and

die in a few weeks. We had been happy together, and she was glad of that, she said, and wouldn't mind dying.

"But I *couldn't* see her grow old without me, Kim! I couldn't! You see, at first she had only been somebody to ease my loneliness. But I knew by the end of that week that I loved her. I knew I loved her, and that her fate had to be mine, too, that I couldn't live on after her, without her.

"So I took the suit off. And I felt the radiation changing me. I felt every vital process of my body infinitely accelerated, and I knew that I was like the Ephemeræ, that I was aging a year in every day. Time seemed to stretch out subtly, so that a day suddenly seemed a long, long time.

"I was *glad* to be one of the Ephemeræ! For it meant that Mara and I were really together now, that we would grow old at the same rate, that nothing now could separate us. And when our children were born—"

"Children?" cried Kimball, startled.

Ormond nodded feebly, and pointed to the two youths squatting at the foot of his couch and looking up at him with dumb fear and anguish on their faces. They edged closer, at his gesture. And his wrinkled, trembling hand lovingly touched the dark head of the nearest.

"These are . . . our sons, Kim. Born to us more than two weeks ago."

"Why didn't you tell me what you were doing?" cried Kimball, his voice raw with emotion. "I'd have stopped you, somehow."

"I knew you would try," Ormond murmured. "That's why I didn't let you know, but lived with Mara and the Ephemeræ down here, all these weeks." His thin voice cracked as he added, "She died yesterday. I told you that. She had been getting weaker and older every day, and the disease took her quite quickly. I was glad when it seized me, too, after she died. I'm glad to be going, with Mara."

KIMBALL'S haggard face was working and there were tears glimmering in the corners of his eyes. "You shouldn't have done it, Ormond," he said chokedly. "You've thrown away your whole life . . . all the thirty or forty years you might have lived . . . for a mere few weeks of happiness."

"No, I've *lived* my whole life out, in these few weeks," Ormond whispered. "Kim, we always thought the lives of the Ephemeræ were pitifully brief and frustrated. But they're not. I've found that out. Their life span may be short, but it holds as much joy and pain and sorrow as any long one.

"Kim, I've lived longer in this last month than in all my thirty years before. I've learned love and loyalty; I've held my sons in my arms and watched them grow to manhood; I've seen my wife and by friends among the Ephemeræ grow old with me, and die one by one. And now I can die, as contentedly as if I'd lived eighty years in my other life."

"But you've thought only of yourself!" Kimball exclaimed passionately. "Your duty to the race, to these Ephemeræ, was to live on, so that together we could teach them, and relight civilization among them.

"You knew that, Ormond! You knew how hard I've labored for these two years, teaching the Ephemeræ, trying to start human progress going again among this new race. And yet you deserted me, and now you're dying, leaving me forever."

Ormond's defending whisper came feebly over the wailing and heavy throb of drums. "It was a vain dream we had, Kim . . . to civilize the Ephemeræ. I came to see that. Human civilization is gone forever. It was doomed on the day that star exploded, and with its radiation mutated mankind into a short-lived race."

His fading eyes turned toward the open window beside him, where, in a blue-black oblong of starred sky, Novæ



Aquillae blazed brilliant over New York's roofs. "You can't fight destiny," Ormond whispered. "A star a billion miles away explodes . . . and human civilization falls like a house of cards. The fantastic, inexorable mathematics of fate!"

His voice trailed into silence. In the stillness, the somber rhythm of the drums out in the firelit street, the wailing chant of the *Ephemeræ*, rose loud. "The Other God dies—"

*B-r-r-o-o-m!*

Death drums of the butterfly people, throbbing through the dead and mighty city, pulsing into the room where an old, old man lay dying— Ormond lay, with an expression of strange, relaxed tranquillity on his wrinkled face, in his half-closed eyes. His thin hand still rested on the dark head of his oldest son, as he listened to the thudding drums.

"Things could all have been so different!" Kimball Drew burst, his haggard face working. "If people had only listened when I published my warning about what the new radiation would do to humanity! If only a hundred people had worn protective suits as we did. If even a dozen people had done it—"

"I KNOW," Ormond whispered. "Then we would still have had a nucleus for a long-lived race. But they wouldn't believe; they wouldn't wear the suits. Only you and I."

"It's those first weeks that keep haunting me," Kimball said thickly. "Those first horrible weeks when the effects of the radiation began to appear. That sudden speeding up of human growth, the terror of all those bewildered millions as they began aging a year in every day, the crash of civilized institutions around us, the riot and panic and death here in New York—"

His voice rose to a raw and tortured shrillness. "I should have prevented it all, Ormond! I *could* have prevented it, if I'd somehow made them heed my

warning. And because I failed to make them listen, the mutation went on, and man became an ephemeral race forever. Because I failed!"

"No, Kim!" Ormond whispered earnestly, his wrinkled, senile face shadowed with anxiety and pity. "It wasn't your fault that they wouldn't believe your warning."

"It was my fault," Kimball repeated, self-accusation in his worn, brooding face. "My fault, that the human progress of ten thousand years crashed overnight." The torture in his heart broke through into his anguished voice. "That's why I've tried so hard to teach the *Ephemeræ*, to bring them back to civilization, Ormond. So that I can atone for my failure to prevent this world-disaster. And now you're leaving me to carry on that task alone."

He buried his quivering face in his hands, and his voice came muffled and jerky. "So long, these two years since the mutation! Two years in this city of ghosts, working with these savages who are the great-grandchildren of our own contemporaries, trying to teach them the first rudiments of civilization.

"And the work so hard, so slow! Because they think I'm an immortal god, they've tried to learn, poor devils . . . but they have done it simply to obey me, and not because they have any understanding of what I'm trying to teach them. And now I've got to go on with that slow, groping work, alone until I die."

Ormond raised himself a little with a feeble effort, and looked down at his friend's quivering shoulders with wise, faded old eyes. "Kim, why do you keep torturing yourself with this impossible task?" he whispered. "For it is impossible to civilize the *Ephemeræ*. The very basis of human civilization was leisure . . . spare time in which to indulge curiosity and experiment. And the *Ephemeræ*, rushing from birth to death in days, have no leisure."

"I know that," Kimball said, raising his haggard face, "but I'm trying to get them to think and work in generations, instead of in individual lifetimes. One generation will sow grain, and the next generation will harvest it. One generation will gather fuel in the fall, for the generation of winter to use."

"You'll never succeed in getting them to think that way," Ormond murmured. "They're too human to want to work for posterity. Back in our own civilized era, how many people were willing to perform even the slightest labor for posterity?"

"I'll make them work for the generations to come!" Kimball declared desperately. "I'm their immortal god, and I'll implant in them a sacred command, a racial tradition, of preparing for the next generation. It's the one chance, the one device, by which the Ephemeræ can possibly progress to civilization."

HEAVY AND LOUD, the drums were rumbling out in the darkness. Strong and hoarse rose the keening wail. Ormond, listening, kept his faded eyes upon his friend's haggard face. "Kim, you've let a fancied guilt goad you on for two years in your feverish attempt to civilize the Ephemeræ," he whispered. "And you've failed. You'll always fail. Why don't you give up this quixotic attempt, and snatch a little happiness for yourself while you still live?"

"I've learned a lot of things . . . a lifetime of lessons . . . in these last few weeks, Kim. I've learned that nothing is important in life but the little bit of love and laughter and sunshine that we can have before we die. These weeks with Mara . . . our sons . . . those are what comfort me now that I'm going to die. And you won't even have that little to comfort you on your deathbed, if you waste away your life in this futile toil."

"I can't give up! I can't!" cried Kimball. "It would be treachery to all the

generations of the past and of the future!" He pointed agonizedly through the open window to the looming black masses of silent, lifeless towers. "This city . . . think of the knowledge and science and skill it took to build it . . . knowledge and skill painfully, slowly gathered by thousands of past generations. All that great structure of human endeavor, doomed now, lost and wasted forever unless these Ephemeræ can become the heirs of humanity!"

"If I can start them along the right road with my teaching, they will inherit all that knowledge and it won't be lost. But if I fail, if I give up, they're doomed to be mere savages wandering Earth for all their future. No one else will ever be able to teach them, when I'm gone. I'm their last chance!"

There was pity in Ormond's fading eyes, the pity of the very old looking at the young.

"That . . . it's all I've got to live for now," Kimball added desperately. "My work . . . my teaching of these people—"

He looked out again at the brilliant fleck of light flaring balefully over the clustered roofs. "No star can beat man," he muttered. "Not ever."

Ormond had closed his eyes. There was a space of stillness, heavy with wail and drum throb. The thudding, rumbling rhythm suddenly broke off. At the same moment, the wailing chant ceased.

Kimball went tiredly to the door and looked out. In the red firelight, hundreds of white faces looked dumbly up at him in strange, naked horror.

"What now—" he started to say. Then he heard the low, quiet sobbing from in the room behind him. The sobbing of Ormond's sons. They had pressed their faces against the couch on which their father lay, and their broad, naked shoulders were quivering.

"Ormond!" cried Kimball, stumbling back across the room.

ORMOND'S faded blue eyes were open again—and serenely empty. His wrinkled face was still and peaceful, with that touch of shadow at its edges that told everything.

Kimball looked down dully at his dead friend. He felt no great emotion, now. He felt tired, and heavy, and infinitely lonely.

"Is the Other God truly dead?" The awed whisper came from Ephemerae looking timidly into the shadowy room from the doorway.

Kimball Drew nodded dully. "He is dead."

"But can the gods die?" asked one, still incredulous, staring wildly at the still form on the couch.

*Boom!*

The drums were vibrating again out there, not to rolling rhythms now, but in deep, heavy strokes, at long, regular intervals.

*Boom!*

"The Other God is dead!" wailed the terror-laden chant now.

Kimball spoke heavily to the Ephemerae staring awedly into the dusky hall. "Wrap the Other God and his mate, and bring them after me," he directed. "We shall bury them together."

Presently he was moving tiredly back through the dark and littered streets, back the way he had come, toward the campus of the university. Behind him through the hot darkness came a trailing cortege of flickering red torches.

The Ephemerae carried the wrapped bodies of Ormond and Mara as they followed him toward the campus. Their drums boomed solemnly through the dead streets; their hoarse chant hollowly reverberated from the brooding black towers. "He is dead . . . dead . . . dead! The Other God is dead!"

*Boom!*

Strange funeral procession through the dead, haunted metropolis! And a stranger funeral it seemed to Kimball Drew, with flaring red torches and awe-

stricken faces ringing the wide, hastily dug grave in the weedy campus. Long, rolling rhythm of the rumbling drums, crescendoing to a climax as the two blanket-wrapped bodies were lowered slowly into the grave. Drums of the Ephemerae, throbbing up to heart-swift beat for a moment.

And then silence, deep and pregnant, as the earth was gently pushed back into the yawning grave. Silence, except for the soft patter of falling clods.

"The Other God is gone . . . but I am left," Kimball heard himself telling the silent, torchlit throng in a dull, remote voice. "There is nothing to fear."

For there was terror in the wild faces before him and there was terror in the trembling voice of the old man who answered him. "Yet we fear! For we have now no gods to protect us!"

"Am I not still here?" Kimball demanded, but the old Ephemera shook his head grievously.

"You are not a god. We thought you were, but gods do not die. You are but a man such as ourselves."

And a deep murmur went through the whole fearful, torchlit throng of the Ephemerae. "Gods do not die."

THEY LOOKED at Kimball as he stood stunned, and they looked at him, not reproachfully, but sadly. "Aie, this is a black night for us, my people!" exclaimed the old Ephemera tremulously. "Always we thought that the two gods would protect us from the evils of the world, always we depended upon them to foresee disasters to come.

"And now we see that they were not gods, and so we are left alone and unprotected, and have only our own poor skill and strength with which to protect ourselves."

"You mean . . . that you're not going to obey me, not going to listen to my teachings, any more?" Kimball cried hoarsely.

The old man nodded solemnly. "We tried to learn the things you commanded, even though we could not understand them, because we thought you were more than a man. But now we know you are but a man."

Kimball Drew made a desperate, urgent gesture with his metal-clad arm.

"I tell you, I *am* a god!" he cried. "Have I not lived just as I am now, ever since the oldest of you was a child? Did not your grandfathers and their grandfathers know me?"

"Yes, but it was the same with the Other God . . . and yet he died," answered the old Ephemera. "So will you die also, some day. And gods do not die."

"Gods do not die!" echoed the hoarse, fearful chorus.

They started to move away across the dark campus. Kimball shouted frantically after the receding throng. "Come back! You can't turn against me like this! You've got to let me teach you, guide you! You've got to—"

He found himself alone in the heavy darkness, shouting hoarsely into silence. The red torches of the Ephemeræ were disappearing down into the black wilderness of the city.

"Come back!" Kimball's hoarse voice trailed off into silence. His shoulders sagged, and he stood stricken. "They'll never come back to me," he whispered thickly.

No, never! His long, desperate struggle to teach the Ephemeræ, to recivilize them, was done at last. Finished. A failure.

A last wave of blind heartbreak and revolt surged in him as he looked down through blurring tears at the raw grave at his feet.

"You destroyed my last chance by dying, Ormond," he choked. "But you didn't know—"

HE STOOD there in the solemn darkness, and felt all hope and fear and

self-reproach drowning in the utter weariness that flowed through his brain like an icy opiate.

Now, at the end of his strange road, that was all he could feel; a vast weariness.

"Tired . . . so damned tired," he muttered, staring down at the silent grave. "And there's nothing more I can do now. Nothing but rest—"

He started back toward the tall Physics Building, with slow, dead steps. The yellow-glowing window of his candlelit laboratory beamed cheerily through the dark.

Once inside the big room, he moved over to his desk by the window and sat stiffly down. He sat there, his broad metal shoulders sagging down, and his haggard face strange and wistful as he looked out across the starlit campus and the black city.

Novæ Aquilæ was sinking westward in flaring splendor. And about and above it burned the bright cressets of the farther and nearer stars, those distant suns that the dreaming sons of men had once thought to conquer and harness.

"Not for man, no," Kimball whispered. "But we ran a good race, didn't we? We accomplished some things, in our day."

He raised his metal-sheathed arm in ironic salute to the blazing orb sliding down behind the brooding pinnacles. "To . . . the victor," he muttered.

His arm froze like that, in midair. His whole body stiffened, and his dilated eyes stared wildly out through the window. Someone was coming up the starlit campus toward this building—someone who carried a rifle and who wore a *gleaming metal suit*!

Kimball Drew began to tremble violently. "No," he told himself thickly. "Delirium of some kind . . . can't be real—"

BUT THE sturdy little figure in gleaming metal out there was coming

on! He glimpsed the white blur of a face raised toward his own candlelit window. He got to his feet and reeled like a drunken man toward the door. He burst out into the starlight, and the metal-clad newcomer swiftly raised the rifle to cover him.

"Stand back!" warned a clear silver voice with a ring of danger in it.

"Who . . . you—" Kimball stuttered. He could not find further voice.

The figure before him stiffened, staring incredulously at his own starlit form. "You're wearing a tungsten suit?" cried the newcomer throbbingly. "Tell me, are you Kimball Drew, the scientist?"

"Yes!" he shouted hoarsely. "But in God's name, who are you?"

The rifle was lowered. And as he stumbled forward, he heard the other suddenly sobbing.

It was a girl who was sobbing in the starlight, a tired, worn-looking girl whose whole body, except for her white face, was covered by a flexible tungsten suit like his own. "I'm Jean Crail," she choked. "Thank God I've found you, Kimball Drew. Thank God there's someone left in the world besides myself who has a normal life span."

"Do you mean that you've been wearing a protective suit from the first?" Kimball cried wildly. "From two years ago?"

Jean Crail nodded unsteadily, her

tear-smear face glistening in the starlight. "I was a biological student in a Los Angeles university two years ago. I read the first warnings you published about the new radiation, and I believed you were right, so I made and wore a protective suit from the very first. And it saved me from being mutated by the radiation as everyone else was.

"My family, all my friends, aged and died. There was no one around me but the new people, the savages who were born and aged and died in a few weeks. I was the only normal person. But I knew that you, too, must have escaped the mutation, and might be still living here in New York.

"So for a year, I've been traveling across the country. And when I entered New York tonight, I came here to Manhattan University, the only place where I had any hope of finding you. I saw your lighted window—"

She stopped, breathless. And Kimball, heart pounding, caught her in his arms. "Jean, do you realize what this means?" he cried. "It means renewal of our former long-lived race! The nova will soon subside . . . and you and I, both normal . . . our children and descendants will be long-lived!"

His face flashed wildly. "Long-lived men and women, who can bring back civilization, can tutor and lead the generations of the Ephemeræ—"

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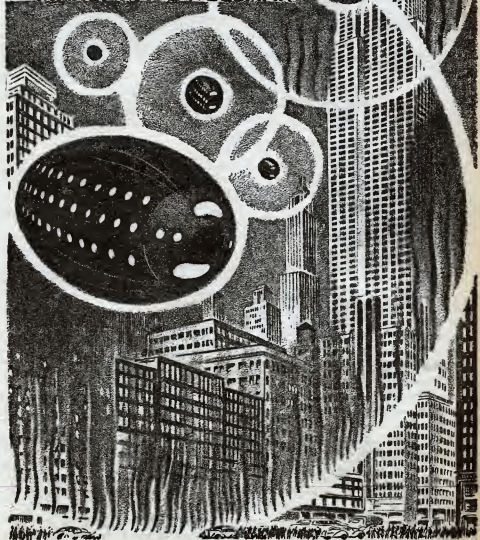
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# NUISANCE VALUE

BY MANLY WADE WELLMAN





***Beginning a two-part serial of a conquered Earth, of mankind reduced to a point that its greatest leader was no more than a nuisance.....***

PROLOGUE

**N**OBODY ever knew for a certainty whence came those cold invaders; so sudden was their arrival, so quick and complete their victory in battle, that the men of Earth had no time for meditation or study—only for flight.

They were great, translucent, helmet-shaped things, moving by hitch-and-hunch upon a rubbery pedestal, snail fashion, but with surprising speed and maneuverability. The comblike crest stood a full five feet from the ground, and at the lowest and thickest point the body was about the same in diameter. At a point just forward of the top sprouted a spray of from six to eight tendrils, like a wriggling plume for the helmet. These were snakily agile, capable of stretching six feet or more, and each terminated in a disklike sucker, like a palm, for grasping or holding or cradling. In the midst of the gleaming gray bulk hung a heavy-appearing body the size of a football, that gave off a deep-red light. This may have been the vital organ, or the sensory body, or both. It throbbed at times, and the degree of its light varied.

The things took their food—liquids prepared by blending of certain chemicals—by absorption through the body surface. They were sexless, and reproduction was achieved by budding. Other natural functions seemed fully as primitive. Some human scientists thought that these strangers might be unicellular, but here again there was no time or opportunity for testing of theories.

They arrived in midwinter, a rain of black ships throughout Europe, North America, and northern Asia. At the

time, there was freak weather, a general siege of zero temperature around Earth's north temperate zone. The first men to see them died almost with the seeing; for every ship gave off rings and halos of white light that exploded all living things they touched. Whole cities and nations fled from one landing of ships, to blunder upon another landing and perish. Armies were mobilized, and fleets of Terrestrial airplanes sought to bomb the snow-girt camps of the strangers. But the projectiles flew back from force-screens of dark-green radiance, while the white lights, leveled in streams as though they gushed from hoses, smashed and melted the airmen into bladdery pulps at their controls and brought down the ships as trophies of war. Artillery bombardment was as futile, and the gunners died as quickly. And more space-craft arrived hourly; the strangers established communication among their various posts, combined their parties into armies, sent strange aircraft as scouts, and in one pitched battle fought all around the globe obliterated Earth's soldiery.

That any escaped was a marvel achieved by a second trick of the weather. Even as the human survivors of the conflict fled despairingly, a thaw set in—again general—throughout Russia, England, Germany, the United States and southern Canada. That rise of temperature gave strange pause to the conquerors. They retreated before it, as men might have retreated before a great fire, and shut themselves up in their ships and shelters. The second day of the thaw, with the sky full of an almost summer heat and the snow running to brooks and rivers, found no single helmet-thing abroad.

THIS PHENOMENON gave mankind its cue. The enemy must come from a planet far from the warm Sun. It throve on cold that would kill Terrestrial beings, and wilted under more temperate conditions. If men would live, they must go south.

South they went, deserting their immemorial strongholds. New York, London, Moscow, Paris, Shanghai, St. Louis, San Francisco, Tokyo—all these stood empty. The foe, plainly intent upon a war of extermination, ventured forth again. This time it was organized against possible warmth, every individual wearing strange sealed armor and many riding in insulated aircraft. Again slaughter and disaster visited the rear-guard of routed humanity. There was no checking or gainsaying the new masters of Earth until the flight had come to the tropics. Then pursuit slackened, and the shattered, exhausted remnants of mankind bivouacked in Florida, in Mexico, in Indo-China.

After that it was a cruel game of hide and seek. No longer did the Cold People have resistance from humanity. Yet their raiding aircraft, insulated and refrigerated, darted here and there above even the equatorial cities, bombing or raying to death the creatures whose hands were too weak to hold Earth. What few people lurked in the temperate and sub-Arctic regions were completely exterminated. The sole survivors plunged deep into hot jungles, there to tend their wounds and teach their children prodigies of hate and dread.

Those children grew up in the stark hope of recapturing their world, but it was half a century before they tried it.

## I.

FIVE CHIEFS sat around a council fire in a wilderness clearing near the Orinoco River. There had been six, but the sixth—a redhead with a hot

temper—had fallen into a fierce argument with the self-appointed chairman of the meeting, and that had developed into a duel with cutlasslike machetes. Now he was dead and lay at one side covered with leaves, signifying nothing more to the council or to this narrative.

The conqueror wiped his weapon on his ragged cotton trousers and returned it to the belt-loop that did duty for scabbard.

"Now we'll come to order," he announced. He wore rings in his ears and a dirty red scarf around his head, but his lantern jaw and his accent were traditional Yankee. His grandfather had been one of four survivors who escaped from Lynn, Massachusetts, in the first days of the Cold People's invasion.

"I reckon the rest of us are agreed on the alliance," he went on confidently.

"Yes . . . yes," said the others. They were savage and bearded and armed, looking rather like bit players in a pirate melodrama of the old days.

"I can speak for those outfits downriver," volunteered a black-jowled fellow named Megan. "They're with us, Spence. They're waiting right now for a report from me on this council."

"Good," nodded the chairman. "With our bands and those downriver fellows you mention, we start with a strong alliance. The other gangs and groups will fall in line. I begin to think our troubles are just about over."

"Wait."

It was not a loud voice, but a very clear one. All turned to look as its owner pushed through a thicket of broad leaves. He was a tall young man, sunburned almost to a sepia tint, with a shock of black hair and startling blue eyes. His strong chin, nose and cheekbones were accentuated by hollow leanesses at jaw and temple. Young Abraham Lincoln might have had such a face and figure. He wore leather

sandals and a pair of patched shorts with a belt-pouch, and was smooth-shaven and unarmed.

Spence fingered his goat-beard and glared disconcertingly. "You were called here to make a report, on your expedition up north," he growled. "You're not a chief, you haven't any voice in this council. I thought you'd gone, anyway."

The tall man grinned unabashedly. "I started to leave, but that fight boiled up. I waited yonder in the thicket, to watch it. And I couldn't help but hear what you said afterward . . . about now your troubles being over. Your troubles are just beginning, if I may say so."

All five chiefs scowled as one. "You may say so, all right," said the black-jowled Megan witheringly, "but it won't get you anywhere."

"I didn't mean that all our troubles were over," amplified Spence. "I meant that the greatest difficulty of the campaign . . . the forming of an alliance—"

"Wait," repeated the young interloper suddenly. "You're ready now to fight the Cold People, aren't you? To advance northward—or southward. I understand their main base is on the Antarctic Continent."

"We go north," said Megan.

"And when you meet them, what?" The lean young face darkened. "Stop and think, you chiefs. Peoples are depending on you for good judgment. I know that it's fifty years since the first invaders came to Earth, and that you've forgotten what it is to be beaten, smashed. But won't we learn all over again? As soon as we come to them?"

"My people were never whipped by the Cold Ones!" snarled a bronzed warrior. He was Capato, a Brazilian Indian who governed a federation of native tribes.

"Because your people never fought them," flung back the youth. "You're

on the point of doing that now, and you'll get your bellyful. Stop and think, I say once more. If they beat us once, when they had barely landed and caught their breath, while we were firm in the saddle, what will they do this time, when they're the intrenched defenders and we're the attackers?"

"You're a defeatist," accused Spence.

"I'll give him a better name than that," sneered Megan. "A coward."

THE YOUTHFUL lips drew back to show white, angry teeth, and two big hands clenched into fists. Megan sprang to his feet, his own hand on his machete.

"He's unarmed," warned another chief quickly. "Don't draw, Megan, until he has a weapon of his own."

But the young scout had recovered his composure. "I pass the insult," he said slowly, "though I may take it up sometime. Just now, there are other things to do than fight duels. That chief who was killed will do plenty of harm, as it is. His people won't come into your alliance."

"He insulted me, mortally," Spence defended himself. "What would you have done?"

"You just saw what I did when insulted. There are other things to do, I say, than to decide whether this man—Megan's the name, I believe?—can beat me in a rough-and-tumble scrap. It's more to the point to decide whether the human race can beat the Cold People."

"We can," snapped Spence, as if violence of speech would win the war. "You seem to think that we've fallen too far from what we were. Yet we still have the things that count in fighting—guns, powder, gas, even some airplanes."

"All of which failed us fifty years ago!"

It was quite true, but the chiefs did not like to be reminded of it. They

let their tormentor know as much by their scowls.

"Again I say that you haven't a vote in this matter," said Spence. "We don't even know your name."

"I'm Darragh. Mark Darragh. And I'm not voting, only reminding. Give me a half-minute more, please . . . long enough to say that we're probably being left alone here in the tropics because they've forgotten about us. If we show fight and get licked, they'll come and wipe us out."

"They can't venture into these temperatures," argued Capato.

"They can fly in the stratosphere—that's chilly enough—and turn their rays on our jungles," suggested Mark Darragh. "That would finish us to the last man."

The picture, briefly and flatly sketched, of such a fate, again brought pause to the five chiefs. Darragh seized the moment and plunged on.

"Once more I ask you to visualize how things have changed. When the first of them came, we were intrenched and in the majority. Now they are intrenched. I've seen their outpost communities, sealed and domed and walled. Perhaps no man of recent years has gone so far in among them, and come back alive."

"It was the foolish adventure of a boy," sneered Spence.

"Perhaps it was," admitted Darragh readily, "but I spent three years in doing it, and I feel that I came back a man, with helpful knowledge about the enemy. And the main point of my argument is simply this: they whipped us once and they can do it again—unless we use another policy and other weapons."

"Yes?" prompted Spence.

"What other weapons?" demanded Megan.

For the first time Darragh looked blank, baffled. "I don't know, just yet."

There was harsh laughter, and yet

again Spence ordered him to leave the council.

"All right, I'll leave," consented Darragh. "But let me leave as your scout, gentlemen. Let me spy out the enemy once more, and bring back the secret that will destroy them."

"Even if you found it, that would take too long," objected Spence. "We can't sneak and hide forever, you know. If you've really been up among the Cold People, Darragh, you probably realize better than any of us how thick they're getting."

"That's right," nodded Capato. "We've got to smack them now, or never."

"Now?" repeated Darragh. "How soon is 'now'?"

Spence made a brief calculation. "It's early September," he muttered. "Too late to gather our men and arm them. We'll drill and organize, this fall and winter, move north with the hot weather, take the Cold People at the worst time of year for them."

"Six months, at shortest," summed up Darragh for him. "Then give me six months for my expedition."

Spence twisted his lips to denote contemptuous concession.

"Get back in six months, and you'll find us ready for our campaign," he said. "We've made fun of you, Darragh, and you deserve it; but you're a long, tall young man, and our army will need lots like you."

"And if I bring you the secret of the Cold People's weakness?"

"Bring it, and we'll see," said Spence, almost indulgently.

"I'll bring it," said Darragh, "and I certainly hope that you'll see."

## II.

WITHIN three days Mark Darragh was drifting down the Orinoco, his goal the sea and the strongholds of the Cold People on its northward shores.

Megan had erred in calling him a coward; his equipment for the voyage needed courage and wisdom to make it adequate.

He chose a boat that had belonged to his father and was bequeathed to him, a thirty-foot dugout of red gum. The wood was almost metallic in its tough hardness, hollowed by fire to a two-inch shell, the inside scraped and the outside polished to the color of stale cherry silk. At the widest it was three feet, and it rode eighteen inches out of the water. Its pointed bow and stern were decked in against waves, and it was furnished with outriggers to starboard and port, also a paddlelike rudder on a pin of wrought iron. A single mast rose a little forward of center, sloop-rigged with mainsail and jib woven of tough palm fiber.

Stowed under the after deck Darragh carried his provisions—flat cakes of manioc, with meal to make more; some big yams; breadfruit; dried meat of pig, armadillo and goat; a string bag of avocados, guavas and pomegranates; a small bunch of bananas; and a string of drinking coconuts. He brought water also, in numerous huge gourds, and trusted to rainstorms for more. His cooking apparatus was a rectangle of slate wedged in the bottom of the boat, with charcoal for fuel and a spit and saucepan for utensils.

Darragh was no navigator, but he hoped to make shift with a compass, a quadrant and a century-old set of United States Navy charts of the Caribbean. His arms were a cavalry saber, old but well whetted, a good sheath-knife, and a bow and arrow. Guns and powder were, of course, kept close in central armories by the chiefs of the jungle communities.

Since he was to spy upon the Cold People, he had prepared and packed warm clothing; a combination garment that would cover body, limbs and head, also two heavy gauntlets and high moc-

casins. The lack of furry pelts in the tropics had baffled him at first, but he had made shift with two thicknesses of deer-leather, between which was sandwiched a layer of cotton and the whole quilted with strong tuft stitches. He had, too, some old goggles and a knitted scarf for the face. And, to complete his cargo, there were some personal odds and ends—several pipes, a bag of tobacco, a well-ground razor, a box of homemade quinine pills, and a copy of "Robinson Crusoe."

The strong-flowing river carried him swiftly to sea, where he put up his sails. An effort to turn northward around Trinidad was unsuccessful, and he remembered that this same ocean current is mentioned in his "Crusoe" book. To the north of Tobago he was more successful, and on his seventh day at sea he made bold to land at the old port of St. George on Grenada, for fresh water and exploration.

The one-time capital of the island had apparently come in for early attention of the invaders; it was in prone ruins, and overgrown with jungle. Even the concrete curbs had gone to powder, and Darragh wondered, as he had wondered so often before, at the power of the explosive ray that had spelled disaster for his race. Guns would be nothing against it. Yet, at sea again, he plucked up spirits. His previous scouting adventure had not been fatal, though he had gone well up the Mississippi. Why should this one not be equally safe and far more productive? It behooved him only to remain cautious, wise, wide awake. Yes, and vicious. Weak peoples had so triumphed over strong ones in earlier days.

He sang, to a tune of his own making, a stanza from Kipling:

"Mistletoe killing an oak—

Rats gnawing cables in two—

Moths making holes in a cloak—

How they must love what they do!

Yes—and we Little Folk, too,  
We are as busy as they,  
Working our works out of view.  
Watch, and you'll see it some day!"

That passage referred to the crushed Picts, plotting the downfall of mighty Rome. Somewhere in it, Darragh fancied, was a lesson for him and his own kind. He wished he could learn that lesson and apply it. How did the song end?

*"—And then we shall dance on your graves!"*

It seemed hard of accomplishment, but he took the line for a good omen, and sang it several times over.

NEAR MARTINIQUE, he struck sails and lay silent as a log while an air-vehicle of the Cold People, a silvery torpedolike thing with no wings or propellers, skimmed and circled down out of the stratosphere to examine the face of the ocean. The water was full of sharks, and perhaps his own craft passed for one of them. After the exploring machine soared upward out of sight, he sailed north again. Much of his food was eaten, but he trailed a line overside, and not a day passed but that he caught plenty of good fish.

Dominica, he observed, had been thoroughly wrecked by the enemy. It was now reduced to a great bald mountain, though once it had had a liberal swaddling of green jungle. The explosive ray had been at work here, and recently. Why? Did the Cold People do target practice? And what was this ray? It must be hot to do such scathe. But how could the Cold People endure or manage a hot weapon?

The mystery added to the menace, but Darragh could not feel too timid about it. After all—and he grinned rather tigerishly as he mused—man had ruled here too long to learn defeat in a mere half century. In his fancy he saw ranks of warriors, ranging one behind the

other in dead time. There were the heroes of Cantigny and the Argonne, in weather-beaten khaki; Lee's gray Virginians; the Light Brigade at Balaklava; Cortez and his handful that gulped down the Aztec Empire; the Crusaders, led by Richard, Godfrey and St. Louis; Caesar's Tenth Legion; Assyrian phalanxes, bearded and scale-armored. And, beyond these, barely half visible in pre-antiquity, the hairy men of flint who had taught another age of monsters who was king.

Just now, mankind was down—but not out, by no means out. Resting, rather, on one knee, strengthening by the respite, getting ready to resume the struggle. The race's plight was not too desperate. Darragh remembered those villages and towns in the jungle, houses of hewn timber and adobe and tight thatch, with governments and market places and fields round about for crops and grazing herds. There were forges, looms, potteries, even presses and machine tools and laboratories. The Cold People had better look out.

One late afternoon, midway of his third week at sea, Darragh came to the southeastern point of Haiti. As he took in sail and ran his boat close inshore under some palms, he saw overhead a half dozen airships of the Cold People, dancing like midges among high, streaky clouds. As he watched, one of them dipped down, and another and another, beyond a belt of tall broad-leaved trees inland.

Darragh was there to scout and spy, and he did not hesitate save to belt on his saber. That saber was a legacy from his grandfather, who had inherited it from a Civil War ancestor. He took, too, a centenarian pair of field glasses, from the brass of which the enamel had been worn, but which were still as serviceable as they had been to a Colorado forest ranger in the early twentieth century. Then he tightened the straps



of his sandals, said a prayer for luck, and moved stealthily in the direction of the descending ships.

Cover was good, and he had no difficulty in making his way through it. The leaves overhead screened him effectively, and, from long hunting habit, he crouched low among trunks and bushes, making no scraping or rustling noise.

Gray light shining through the stems ahead betokened a clearing, and he moved more cautiously still to its very edge.

HERE IN the midst of the jungle was a spacious bald circle of earth, as large as a flying field, and in its center a great artificial dome. Upon the top of this structure was descending the last of the ships, to vanish as though into a trap-door or valve. Darragh was looking, as on several occasions before, at an outpost-shelter of the Cold People.

The dome was a good two hundred yards in diameter, and half as high. Its surface appeared patchworky, with several materials employed—dull dark-gray metal, circles and quadrilaterals of glass-like transparency, irregular blotches of fine-grained stone that might have been mortar or cement of some kind, and occasional panels on hinges, that probably were entrances. Through Darragh's glasses it seemed quite new, and the baldness of the clearing was new as well—no sprouts of young vegetation in the fat black earth. He judged that the mysterious rays had snuffed and scalded out this patch of jungle, for there were no felled trunks, no decayed leaves. Summing up, this might well be one of a group or system of new posts to the southward. The Cold People, perhaps strengthened by emigrations and increased birth rate, were closing in on the tropics. The denuded island of Dominica must be destined to bear another such fort. Had the instinct of Spence and the others been good, that

now or never was the time to fight, before fight came to them?

Darragh's earlier expedition had taught him that the Cold People were not apt to observe movements at night, and he decided to make a closer investigation of the dome's environs after sundown. Waiting for an hour or so, he observed a new flight of ships issuing from the top, as though for a patrol activity. Then he slipped back in the direction of his boat under the seaside palms.

Moving silently, as before, he was aware of a noisier creature in the jungle or at the water's edge.

At once he dropped flat and waited for long moments. Then he cautiously peered along the way he had first come, and finally he crept on all fours. The noise continued, as loudly and clumsily as though a hippopotamus were tramping in the bush. Again he lifted his head, screening it behind some lemon-scented vines.

He saw something silver gleaming and vaguely pyramidal, close to the water's edge. One of the Cold People—between him and his boat!

Darragh remained motionless, and stared. There was little more than that for him to do. He made out the form of the monster, swaddled and blurred by a strange cloak or sheath it wore, apparently armor of insulation against the tropical heat. The fabric was as transparent as isinglass and quite supple, he could see, but of considerable thickness, and each of the tentacles that served as arms had a loose sheathing of it. The thing's attention was apparently to seaward, and Darragh made bold to creep closer.

He could see the water by the palms, his boat in it, and, floating easily just beyond, an air-vehicle of silver-appearing metal like a twenty-foot cigar. On top of this apparatus perched another armored Cold Creature, and along the beach shuffled the one Darragh had first

spied. Now a third slid into his view, from behind the roots of the palms. All three were examining his boat.

They turned their comb-tops toward each other, and their tentacles vibrated, as though they were communicating in some weird sign language. Then the one on top of the aircraft dropped momentarily into the interior, to clamber back with a tangle of cordage. This it tossed to the shore.

There was some twining and interlacing of the cords, very deftly done as it seemed to Darragh. Then the two on shore joined their companion on the craft, and all three climbed down inside. A breath's space later, the ship rose gently into the air, and lifted after it, as in a net of ropes, Darragh's dug-out and all his possessions inside. With this burden it floated inland toward the domed outpost shelter.

Desperately and incautiously, Darragh raced back in the same direction. He arrived at the edge of the clearing just in time to see the Cold People's ship, still carrying his boat, descend to the top of its home structure and sink out of sight.

### III.

DARRAGH'S dugout-load of equipment for the voyage was primitive and sketchy, and this situation was well appreciated by Darragh; but it was all he had in the way of transportation and provision.

On his race back through the trees he did some quick, serious thinking. The Cold Creatures' discovery and seizure of his boat had left him stranded and foodless in a strange, wild place. That discovery also meant that the Cold People would divine his presence in the neighborhood. They would hunt for him, find and kill him out of hand, as they had killed almost a full generation of men.

He might, with good luck, escape into the jungle—but what then? He would

be alone, for he knew the Cold People well enough to understand that they had built their dome-fortress only after wiping out the last trace of humanity upon the island of Haiti, and perhaps the last trace of humanity throughout the Caribbean. He would be helpless, for his sword would avail little against the ray-weapons of Earth's frigid conquerors. And his effort to inform his fellows, back there at their war-plans in South American jungles, would go for nothing.

He must, in short, capture his boat again.

Night fell, with the abruptness it affects in the tropics. A large and hungry mosquito sang as it prodded Darragh's cheek. He brushed at it with one hand, and studied from behind a tree the great dome-shelter of the Cold People.

Lights were flaring up behind its patchwork of glass panes. The Cold People needed light in the dark; whatever their sensory system, they could not be properly aware of objects save with light. Darragh, outside in the gloom, would probably be unobservable. Yet it took pluck to venture into the open, and to steal across the bare, black earth.

Coming close to the dome, he shifted his stealthy course to avoid a direct approach to any of the windowlike spaces. He came up against a comfortably opaque curve of rough stony bulwark, and cautiously peered past the edge of a panel of glass. He saw a compartment with walls of speckless white, in which five or six Cold Creatures were picking daintily at a keyboardlike array of levers and buttons. Some machinery, he rightly judged, that begat power—perhaps an item of the complex refrigeration system without which they could not exist. Stooping low, he slipped past, beneath the groundward edge of the pane, and came to another opaque stretch beyond. Here his hands found considerable roughness,

incised with lines into which he could slide his fingers. These lines ran one above the other, like rungs of a ladder. A ladder, he decided in a moment, was what they were, for the Cold People to mount with the creeping vacuum-suction powers of their basic organs so like the feet of snails. He, Darragh, determined to climb.

He slipped off his sandals and tightened his belt. Then he mounted the curve of the dome, fingers and toes groping for the notchlike lines. It was not too difficult a task for an active climber who wanted badly to reach the top—and Darragh wanted nothing in the world so badly. If he failed to reach his boat, to drag it out somehow, the Cold People would get him anyway. Might as well be hanged—or rayed—for a sheep as for a lamb.

He wriggled sidewise around two more glass panels in the surface of the dome, also around several nozzle-like projections that might be ray-throwers. He wanted to look down into these latter, but sagely decided against it. Once his saber-sheath scraped loudly on the stone, and he felt that all the Cold People in the universe must have heard it. But did they hear, were they sensitive in any way to sound waves? They never made sounds, so far as he had been able to learn.

THE CURVE was not so steep above, and he made faster progress as he approached the apex. Ahead he saw darkness, some kind of an opening. He crept cautiously to the edge of it.

Here a slice of the dome was slid away into a recess, leaving a gap like that made when a plug is cut out of a melon. Darragh was crouching at the edge of a sizable quadrangular pit, a good forty feet long by half as wide. There was light at the bottom, shining through a floor that appeared to be made of clouded glass. Upon this floor rested an aircraft of the Cold People. Yes, and

his boat rested there, still wound in rope lashings!

Pausing on the lip of the opening, Darragh once more put two and two together.

The landing-hole had not been closed; therefore the ship would shortly take flight again. And fastened to that ship was his boat. It was going along. Where?

The answer was easy; to some greater post of the Cold People, for exhibition to higher officers, probably as evidence that men still dared to spy out their vanquishers.

Darragh examined the walls of the orifice. They were sloping, and no more than twenty feet high. He saw, too, that there were more of the ladder slits. Quickly he climbed down.

Reaching the lighted bottom, he stood still for a moment. His bare feet felt an icy chill, apparently filtered from the frozen interior. Noiselessly he stepped across to the boat, drawing his sheath-knife.

It had been his intention to cut the binding ropes almost through, so that the boat might break loose and fall within seconds after it was lifted into the air. Then, according to his reasoning, it would be cushioned by the twigs and branches of the jungle and slide unharmed to the ground beneath. He would find it again, get it into the water and escape under the cover of night.

But now he hesitated. The boat was empty of all his stores. Even the mast was stripped of the sail, the slate hearth had been pried from its fastenings. Where could the things have gone?

He gazed quickly around. The Cold People's airship lay next to the boat, a metal cigar in which a hatchway gaped open. He tiptoed gingerly to it and stared inside. Something was bundled there, in a dim reddish light like a coal from a hardwood fire. He thought he recognized the string fruit-bag. He

stepped within, began to fumble.

Then he snapped erect. Outside there had sounded a sliding rasp of metal. A panel was opening. In the moment that followed, a creaky flow, like the dragging of wet rubber.

Cold People had emerged from the recesses of their shelter. They were coming to the ship.

Darragh felt panic, and inspiration. He must hide. The folds of the palm-fiber sail, bunched into a corner, were ample. Into them he dived, like a rabbit into its burrow, and wriggled deep. Then he pushed aside one corner of the fabric, enough to peer out.

A shiny-swaddled shape, indistinct in the dim red light, was entering. Then another. This second one put out gloved tentacles to slide shut the hatch. The first went forward, touched some instruments that gave a faint clatter. The red light grew brighter, paler. The ship vibrated, shifted. It was taking off.

The strengthening of the light gave Darragh his first clear view of the compartment. It was by no means large, perhaps half the length of the vessel, he judged. The rest must be taken up by engines, though he heard no purr of machinery. No furniture for the Cold People, who were not built to sit or lie, even when in that motionless condition that for them must be sleep. The bulkheads were pierced with glassed-in ports, bore strange instruments that might be gauges or chronometers, and were furnished with closed cupboards.

The operating gear was strange but, after a moment, understandable. Upon a little pedestal of shimmery metal lay, or was fastened, a cross made of two wirelike rods about a foot long. From their intersection rose a third rod, rather like the gnomon of a sundial, but slender and perpendicular. Each of the four arms of the cross, as well as the upright fifth arm, bore a beadlike object, more than an inch in diameter and dead black.

The position of these beads determined the direction of the ship.

Just now, they were going upward; one tentacle lifted a bead to the top of the upright. And likewise they were going ahead; the bead on the foreward arm of the cross was advanced, while those on the other three arms remained close to the intersection of the rods. Already they must be high above Haiti and the tropic heat, for upon Darragh's naked body began to rise protesting areas of gooseflesh. He tried not to shiver, nor to breathe heavily.

He tried, also, not to curse himself for getting into this ship. Cursing one's self was a waste of time, when one needed badly to discover a way out of dire danger.

#### IV.

DARRAGH, though tough and healthy, was tropic-born and tropic-bred. Cold he could not endure, and it was growing colder by the second. He groped wretchedly in his mind for a way of escape, and once again something came to his mental hand. He had prepared a warm dress, an armor against just such temperatures. It had been stowed in his boat, of that he was sure, and it had been taken out, must have been dumped into this cabin. He widened the crack of his vision between the folds of the sail.

There was the bundle, sure enough, a great lump of folded leather, with mocasins and gloves in its middle and the whole bound with strips of rawhide. But it was a good four feet out of reach. Darragh clamped his teeth together lest they chatter, and considered hunching the sail a bit closer. But that would be noticed by one of the Cold Creatures, maybe by both. Meanwhile it was growing colder, degree by degree. It must be nearly freezing.

He had to get the garments, that was certain. Had to reach them, drag them unobserved into his hiding, and there

*The Cold Creature shriveled . . .  
not from the bite of the sword, but  
from the deadly heat of air that  
froze the man.*



put them on. A shudder threatened to make his body thrash like a jumping-jack. Desperately he fought it down, pressing his arms to his naked sides. His left hand touched the hilt of the saber.

That gave him a new hope. He began to draw the weapon, an inch at a time. When it was free of the scabbard, he pushed the fold of the sail still wider. His breath made a steamy cloud in the red-lighted air outside.

Carefully he pushed the tip of the blade into the open. Farther. Farther. His hand was in view, now his wrist. His arm exposed itself to the elbow.

The saber's point reached the bundle of clothing, slid itself under a strand of the rawhide binding. Darragh repeated a prayer to himself, of deep and devout thanks. He began to drag the prize toward him.

At that instant one of the Cold Creatures—the one that had no control work to do—turned in his direction.

It was impossible that the thing should not perceive. Yet, perceiving, it did not quite understand. Mildly mystified, it began to hunch its bulk closer.

Darragh fell as motionless as though the chill air had indeed frozen him. He dared not take his hand from the saber hilt; that would have given him away entirely. The monster inched down upon him, towered above the huddled sail and the saber with the bundle of leather at the tip. Its strange sensory powers were trained upon this curiosity; Darragh, crouching like a mouse under a napkin, could see the glow and pulsation of its central organ.

It was observing that naked hand. No doubt but that it knew what creature owned such an extremity. A tentacle reached down to twitch away the sail, while another fell toward a pouch of its transparent heat-armor—a pouch that held some sort of weapon.

A ray-thrower—

Darragh was not one to die quietly. He snarled softly, rose to his knees, and

made a slashing cut with his saber.

The thing divined the move, sidled nimbly backward, but not far enough. The saber-point ripped across the front of its covering, tearing a great rent. And that was all that was needed.

Staring, Darragh saw the creature's tentacles relax, quiver and sag, saw a slumping of the great pyramid of gelatinous tissue that was the body. The air that he had thought uncomfortably chilly was rushing in through that slit in the armor, like a blast of killing heat. Already the monster was helpless, unconscious. Darragh, still upon his knees, the fighting grin stamped upon his desperate face, watched while the inner organ grew dimmer, feebler of pulse, then dark and silent. The Cold Creatures came from a planet not only cold, but of unchanging temperature. Like snakes and snails, they took their temperature from their surroundings, and had no heat-regulating mechanism within themselves. But, highly organized mentalities, a degree or two of change meant unconsciousness; five degrees meant death.

His discoverer was dead, within less than a minute.

No motion or menace from the Cold Creature at the ship's controls. The drama behind it had gone all unnoticed. Darragh exulted fiercely, then dragged the clothes to him and, stooping to hide behind the silent bulk of the dead creature, struggled into them. He thrust his feet into the moccasins, donned the gloves, pulled the hood over his ears and face. He drew a steamy breath of comparative relief.

STILL the ship mounted upward, its floor gently tilted, while the temperature dropped steadily. Darragh judged that it was truly freezing by now, perhaps below freezing. But his quilted swaddling of leather was sufficient, and he had the goggles and scarf for face protection if need be. Gingerly he wriggled



back under the sail, and propped up an edge of it so as to peer out past the dead mass toward the creature at the controls.

Since, by a great stroke of luck, he had killed one of the things, he would have to kill the other; that is, if it did not kill him first. He could make out the transparent pouch at its side, in which nestled a pistol-formed apparatus for throwing rays.

But he must not attack now, not until he had some clue for the operation of the ship. He glued his eyes to the controls, on which carelessly skillful tentacles slid beads backward and forward. Higher the craft was mounting, and higher. Darragh felt the chill of the upper air, even through his quilted leather, and he adjusted his goggles and scarf. His breath made frost in the fabric he stretched across his mouth and nose, so that it was like a mask of cold tin.

At length the creature at the controls began to pluck at its armor with free tentacles, unfastening it and throwing it off. Its own range of temperature-comfort was being reached. Something well below zero, Darragh judged. He also judged that the time for striking had arrived.

He took his saber tightly in his gloved right hand, rose cautiously to his feet behind the protecting carcass of his first victim, then sprang round it and at the other.

The thing was aware of him, slid away from the controls and thrust a groping tentacle at the ray-thrower in its discarded cloak. But Darragh got there first, kicking the garment aside and out of reach. Tentacles shot out at him, grappling him with anaconda strength. At the same time the floor tilted dangerously, as if the ship were losing its balance.

But Darragh struck home with his saber. It pierced the massive translucent body like cheese, plunged full

into the glowing, throbbing central organ. He twisted the weapon, drew with it. Deep within the substance of the Cold Creature, his edge sliced in two the nucleus-center. The grip of tentacles fell wiltingly away from him.

Darragh was master of the ship.

## V.

LUCK, it must be admitted, was necessary to allow the slaying of the first Cold Creature. Double luck had favored Darragh in his victory over the second. But perhaps the high point of his phenomenal good fortune was attained when the aircraft he had captured did not crash at once to the ground.

For one thing, the Cold Creature which he had sabered at the controls had flown miles high, nearly to the stratosphere in fact. When the pilotless vessel began to sideslip, throwing the two ungainly carcasses against the port bulkhead and almost toppling Darragh from his moccasined feet, it had a long way to go before crashing disaster could come. In the moments that followed, Darragh steadied himself by clutching the pedestal of the control mechanism, shook the gauntlets from his hands and began to manipulate the beads upon the five metal arms.

The principle of the thing he had already grasped, and at once he drew all beads close to the juncture of the arms. The ship righted itself, but began to descend swiftly. He drew the bead up the perpendicular arm, and after a shuddering halt in space, the thing began to rise. A slight lowering of the bead slackened the pace, and he adjusted all the beads until his captured ship held an even keel and a course forward. Then he blew upon his cold-nipped fingers, thrust them back into the shelter of his gloves, and studied other items.

Before him, as he stood in pilot posi-

tion, was set a round transparent pane, a bit obscured by frost. A rub of his gauntlet-cuff cleared it, and he gazed into the night sky, with three quarters of a moon ahead and a floor of soft, smooth cloud far below. He must still be miles high, despite the recent drop in altitude. On one side of the port hung a thermometerlike arrangement, a graded board with a glass tube upon it. In this quivered a sparklike red pellet, halfway up. A gauge of altitude, Darragh guessed, and apparently indicating that the ship was progressing at about half its maximum soaring height. On the other side of the opening was riveted a pair of engraved metal squares, one above the other.

The uppermost of these was quite evidently a plan of the ship, stressing many mechanical devices in the chamber aft, which Darragh despaired of understanding. At the point in the diagram where the control group would be located, were various flecks of glowing light, approximating the positions of the various direction-beads. Darragh moved one or two of the beads, and saw the flecks move with them. This diagram, he judged, was to show that all mechanism was in working order. He could find no wire or lever connection between the controls and the picture, nor any battery to supply the moving light-flecks. He remembered, however, that the Cold People were masters of ray-mechanics. There might be invisible bands of power beyond his easy comprehension.

The lower rectangle was a map of North America, not large, but finely done, with the continent and islands in green and the waters in blue. Here, too, was a fleck of light, somewhere near the juncture of the Florida peninsula and the main northern shore of the Gulf. After a moment of puzzling, Darragh set this down as an indication of the ship's position. The steady northern progress of the fleck on the map, as time went by, confirmed his guess. Here and there

upon the map showed other, softer glows, ruby-red and varying in size from a pin point to half an inch across. One such shining mark was visible upon the island of Haiti, from which Darragh deduced that these denoted forts or settlements of the Cold People. The largest and most numerous red lights showed in northern Canada and the islands of the Arctic; but several showed in what had been the United States, and one of the biggest of these was situated on the shores of Lake Michigan.

"They've certainly made themselves at home," mumbled Darragh into the scarf across his face. "I wonder how many there are."

HE WISHED that the council of war-eager chiefs in the South American jungles could see that map with the gloomy information it gave. For a moment he ungloved and put out his fingers to coax the control beads into a U-turn toward his home wilderness. What a capture this craft would appear to those who had scorned him! How they would stare at the two corpses of the Cold Ones he had slaughtered! Perhaps the best mechanics could study and appreciate the running of the ship, could make others from it. But then he remembered that he had promised to bring back definite plans to overthrow Earth's conquerors. The glorious return with this little scouting craft might bring him credit and praise—but it would not be sufficient to assure victory.

Gazing at the map and his position upon it, then leaning forward to judge direction by the stars, he set a course toward the big town-blotch on the brink of Lake Michigan.

The night wore on. He grew tired of the cold, and gingerly manipulated the controls to drop his ship close to the cloud layer. Once or twice he pushed forward the bead that would increase speed ahead, but drew it back when the

ship's acceleration frightened him. He had no way of telling the maximum speed of the machine, and no desire to discover it by experiment. He felt safer when it was going at an estimated hundred miles an hour.

Sunrise came. In the lower altitude the temperature dropped until Darragh was fain to take off gloves, goggles and scarf. He kept on the leather overall, but threw the cowllike hood back from his face and head. For breakfast he gnawed fruit from the string bag he had repossessed.

At mid-morning, the flock on the map showed that he approached the great center of Cold People by the northern lake. He began to wonder how best to reconnoiter the settlement. It would be wise, he decided, to set the ship down in some hiding place, among trees or in a deep valley, and approach on foot. Pondering thus, he was aware of a vibration in the floor under his feet, a silent quivering.

He frowned in puzzlement. Was the mechanism failing? No, the ship did not waver. The vibration ceased, then returned, stronger and complicated with a deep undertone that broke into a semi-rhythmic succession of jerks. It was like telegraphy. It *was* telegraphy.

Up ahead, a slightly larger ship was idling, its nose turned toward him. It was trying to signal him.

Darragh had no desire for conversation or close companionship. He touched the bead on the right arm of the control group, made his craft slip sidewise and around the other. The vibration grew more intense, insistent, even commanding. Then a new pattern thrust itself into the cabin, seeming to stir the air around him. Another ship, evidently.

He peered forth. Two or three vessels of the size of his own were dropping down from above. Still others struggled up through wisps of cloud.

They were converging upon him.

"Attack!" he snorted aloud. But they did not turn on their murderous rays. Instead, they bunched and wove closer and closer, as angry wasps close in upon a beetle. It was too late to get away from them, even if he knew how to outfly them.

The only opening was beneath. Darragh dropped quickly down. The others dropped with him. Many vibrations stirred the floor, the bulkheads, the confined air of his ship. Again he sped along forward, again he was overtaken and surrounded. He had to drop a second time.

They were driving him along a certain course.

Desperately he tried to plummet through the clouds, hoping to lose his pursuers in the mists; but, when he came out below, they had fallen as swiftly and were all around him once more.

Now he saw a great sheet of water, stretching far out to the horizon, with trees at its shore and upon hills far away. There rose, also upon the shore, a great plump dome.

Artificial? A haven of the Cold People? But it was as large as a mountain, five miles in diameter and fully two miles high! Thousands of ports pierced its surface, great veinlike abysses appeared in it, as though they were the cracks of doors ever so slightly ajar. This was surely a capital city of the enemy. And the ships, darting and crowding around him, were forcing him toward it. Ever the vibration shook his fugitive craft, driving him half wild.

Now he was over the dome, almost directly above it. A round black pit opened suddenly near the rim, like an intent green eye in a smooth, spacious face.

*This is the end, said Darragh in his heart, this is the farewell of the fortune that has kept life in me.* He had heard

of the explosion-ray too often to hope for survival.

But he was not exploding. He did not feel discomfort, even. He felt no vibrations, no motion. His ship stood still, as though pedestaled upon that beam of green radiance.

About him all things turned green, as if the light mushroomed there, flowing all over him and into his ship. He could not move, could barely breathe.

There was a new sense, as of lightness, of rising from the floor. That was it, the floor had dropped from beneath him. The green beam was dragging him and the ship down to earth, down into the dome.

Seconds later he jarred to a standstill. All was dark outside, and his own lights had blinked out.

Some inspiration of self-saving impelled him to thrust on his goggles and scarf and gauntlets, to drag his hood over his head again. Then he dived under the sail that had already been a shelter to him.

He was just in time. The hatchway creaked, rang protestingly as though it was being picked at from outside. It opened.

Cold Creatures were entering.

## VI.

WITH THE OPENING of the hatch there rushed in a wave of deadly cold. It pushed through Darragh's leather clothing, nipping and tingling his skin. This would be the temperature best suited to the Cold People, he was aware.

Peeping once more through a half open fold of the sail, he saw the first comers gather around the two dead bodies. There was a crowding together, a fluttering of tentacles, as though the Cold People conferred in sign language. One or two prodded experimentally at the saber-cut in the pilot creature, but

they seemed at a loss to account for it. Finally the carcasses were lifted—the tentacles of the Cold People were amazingly strong and deft, even with such heavy bulks—and passed out through the hatchway.

Then more of the things began to explore. Darragh's possessions were scooped up, examined, passed from tentacle to tentacle. The last few pieces of fruit were poured from the bag, and fell with hard whacks; they were frozen quite solid. One of the Cold Creatures lifted a ray-apparatus, not much larger than an atomizer, and turned a pencil-thin stream of pale light upon a banana. It exploded as violently as a cannon cracker, leaving not even a dampness behind. The ray traveled to other fruits, and they, too, exploded. Then the neighbor of the operator caught at him with protesting tentacles. Plainly he was being urged to desist. The fruits should be kept and examined, not destroyed.

Not destroyed, at least, until later.

Tentacles held hold of the sail, dragged it from him. This, Darragh said again, was the end. Those ray-throwers would be his finish. He lay quiet, feeling very exhausted. But the ray of death did not come.

Instead, he felt tentacles upon his legs and arms and body. Their terminal disks took hold, hard and rubbery and facile. He felt himself being lifted, shifted. No attack yet. He might not seem human to them, he decided. With overalls, mooccasins and gloves, hooded head and mask of goggles and scarf, he might excite only curiosity.

Now he was being handed along from one creature to the next, being passed through the open hatchway. He could see nothing but a pale ceiling that had a frosty gleam to it—ice crystals, of course—and he could hear nothing at all. He did fancy that it was colder, if anything, outside. Then he was flung down, roughly, like a bale of cloth-

ing, and was able stealthily to peer around.

The ship had settled into a great chamber with smooth, icy sides and a ceiling that was made in two pieces, like jaws, to open and shut. In all directions opened tunnels, darker than this chamber itself. About the ship, mostly at the hatchway, glided and clustered more than two dozen of the Cold People.

Now they were passing out more things from inside, his saber among them. And this drew more attention than any one discovery up to now. They all pressed close to examine. No doubt but that they connected that gleaming, well-sharpened blade with the fatal stab in the body of their comrade.

It was high time to get away, anywhere. Darragh rose suddenly to his knees, gave a great spring and fairly dived into the nearest passageway.

Commotion boiled up behind him, a great slapping and wriggling of many clumsy bodies. Something gleamed past him—a narrow, cold ray of colorless light. It missed, but the wall it grazed seemed to fluff away into steam, and a buffet like that of a gust of a hurricane almost hurled him from his feet. Then he plunged into a side-opening, made a turn beyond. That was, the way to dodge their cursed rays—keep angling away, even into the interior of the hive. If they caught him in a straightaway tunnel or an open space, he'd be done for, like a bug under a stream of insecticide.

The new tunnel widened, then gave into a great courtlike opening with a luminous ceiling. Machines whirled here, like some kind of loom with Cold Creatures pottering around among the wheels and belts. Darragh paused only long enough to locate a new corridor beyond, then crossed the floor to it in desperate leaps. He was away almost before they could turn toward him.

But what would be the end of this

headlong dash? Darragh, for all his length and hardness of leg was puffing already. The cold nipped and dragged at him. His breath, clouding out through the scarf, fell around him in crystals. It must be inhumanly far below freezing. If he stopped, he might be overcome.

He reached another open space at a crossway. And here were Cold Creatures ready for him.

Three had ray-apparatus and were stabbing the beams after him, making steamy furrows in the clotted frost of the floor. He could not escape, he knew, but the beams did not quite touch him. They made a pattern around him, as though to bind instead of to obliterate. One way was open, to one side. Perforce he turned that way. He tried to gain the dark mouth of a tunnel, but a beam flew quickly to block his way. Another tunnel was the way they wanted him to go, and he went.

Once inside, he ran again. No rays blasted him and, as he expected, he swiftly outdistanced the things that had tried to capture him. But at the far end he reached another open space, this time as large as a public square. It had little shantylike structures of metal or smooth concrete, and across its middle ran a single rail on supports. As he emerged, an open one-wheeled vehicle came speeding along this rail. From it sprang Cold Creatures. More rays began to glow, again weaving their snares around him.

Why didn't they finish him? Was this some complicated cat-and-mouse game? He had heard that the Cold People were ruthless in their warfare, but never that they were wantonly cruel. He wished for guns, arrows, for his sword even, so that he might charge and perhaps kill yet again. But there was no chance for that; only a chance to run down another alley. He was wearying, but he ran. The rays played behind him, never quite upon him.

Along this new way, a sizable one, ran another rail, and soon he heard a whispering whir, as a single-wheeled car came in pursuit. The Cold People were hounding him, but not so fast as to overtake him. He must keep up his speed to stay ahead of their vehicle, their rays. Another open space, but no chance to turn away, the side exits were guarded by inexorable patrols with ready weapons.

Darragh had come more than a mile, at a speed that made him sweat despite the ineffable cold. Again and again he had thought his last moment had arrived, but it had delayed—

And now it would delay no longer. He had come to a blank wall, ridged with frost. Around him were ranged the Cold People, their ice-colored beams fencing him in. He swore at them, going hysterical at last. "Get it over with!" he raged at the top of his voice. "I'm through making sport for you!"

His shoulder was to the wall, and the wall slipped beneath it. One of the Cold Creatures had stopped at a stand of levers nearby, was opening some sort of panel. Blackness beyond, and a wave of cold that surpassed anything he had felt hitherto. He reeled, caught his breath.

Liquid lapped inside there—a ditch,

filled with running, steaming water! Yet it was many, many degrees below zero.

He faced toward the Cold People again. One pointed a ray-gun, a beam sprang at him, not white, but dark green. He felt as if he was struck on the chest by the end of a flying log. Whirling backward through the open door, he soared across the floor, hung for a moment spread-eagled against a perpendicular partition beyond. Then that, too, gave way, sinking back and down. He fell through, and the valve snapped shut, as if on a great spring.

It was bright in here, and the ground or floor solid beneath his crumpled body. He lay still, tingling in every extremity. He closed his eyes against the brightness.

Then something touched him, drew down his hood, plucked away the frozen scarf.

"Stop!" gasped Darragh. "I'll freeze!"

But he was not freezing. He was warm. He lifted himself on an elbow.

Men and women were clustered about him, human beings with anxious faces. The one who was trying to expose his face was a blond girl, healthy and handsome and smiling.

"Take it easy," she said to him. "You're among friends."

TO BE CONCLUDED.



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# THE MERMAN



*With a lithe flick of powerful fins, the shark swept past, the lamb chop abruptly out of Brock's grasp and in the trap-mouth of the fish.*

by L. Sprague de Camp

*Brock had a sound idea....but his method of application went awry. He not only could, but had to live under water!*

AS Jove nods occasionally, so Vernon Brock forgot to wind his alarm clock and, as a result, arrived at his office with the slightly giddy feeling that comes of having had no breakfast but a hasty cup of coffee. He had no way of knowing, then, what the results of his incidental nervousness would be.

He glanced at the apparatus that filled half the scant space in the room, thought, "You'll be famous yet if this works, my lad," and sat down at his desk. He reflected that being an assistant aquarist wasn't such a bad job. Of course, there's never enough money or enough room or enough time, but that's probably the case in most lines of work. And the office was really quiet. The chatter and shuffle of the visitors to the New York City Aquarium never penetrated; the only sounds were those of running water, the hum of the pump motors, and the faint ticking of typewriters. And he did love the work. The only thing that he possibly loved better than his fish was Miss Engholm, and for strategic reasons he wasn't telling anybody—least of all the lady—yet.

Then, nothing could have been sweeter than his interview with the boss yesterday. Clyde Sugden had said he was soon going to retire, and that he was using his influence to have Brock advanced to his place. Brock had protested with practically no conviction that, after all, Hempl had been there longer than he, and so ought to have the job.

"No," the head aquarist had said. "The feeling does you credit, Vernon, but Hempl wouldn't do. He's a good subordinate, but has no more initiative than a lamellibranch. And he'd never sit up all night nursing a sick octopus the way you would." And so forth. Well, Brock hoped he really was that good, and that he wouldn't get a swelled head. But knowing the rarity of direct praise from superiors, he was deter-

mined to enjoy that experience to the utmost.

He glanced at his calendar pad. "Labeling." That meant that the labels on the tanks were out of date again. With the constant death of specimens and acquisition of new ones that characterizes aquaria, this condition was chronic. He'd do some label shifting this evening. "Alligator." A man had phoned and said that he was coming in to present one to the institution. Brock knew what that meant. Some fat-headed tourist had bought a baby 'gator in Florida without the faintest notion of how to keep it properly, and now he would be dumping the skinny little wretch on the Aquarium before it died of starvation and the effects of well-meant ignorance. It happened all the time. "Legislature." What the devil? Oh, yes, he was going to write to the Florida State legislature in support of a bill to prohibit the export of live alligators by more fat-headed tourists, while there were still some of the unfortunate reptiles left alive in the State.

THEN the mail. Somebody wanted to know why her guppies developed white spots and died. Somebody wanted to know what kind of water plants to keep in a home aquarium, and the name of a reliable seller of such plants in Pocatello, Idaho. Somebody wanted to know how to tell a male from a female lobster. Somebody—this was in nearly illegible shorthand, at which Brock cursed with mild irritation—"Dear Mr. Brock: I heard your lecture last June 18th inst. on how we are dissended from fish. Now you made a pretty good speech but I think if you will excuse my frankness that you are all wrong. I got a theory that the fish is really dissended from us. . . ."

He picked up the telephone and said, "Please send in Miss Engholm." She came in; they said "Good morning" formally, and he dictated letters for an

hour. Then he said without changing his tone, "How about dinner tonight?" (Somebody might come in, and he had a mild phobia about letting the office floor in on his private affairs.)

"Fine," said the girl. "The usual place?"

"O. K. Only I'll be late—labeling, you know—" He thought, foolish man, how surprised she'd be when he asked her to marry him. That would be after his promotion.

He decided to put in a couple of hours on his research before lunch. He tied on his old rubber apron and soon had the Bunsen burners going merrily. Motions were perforce acrobatic in the confined space. But he had to put up with that until the famous extension was finished. Then in a couple of years they'd be as cramped as ever again.

Sugden stuck his white thatch in the door. "May we come in?" He introduced a man as Dr. Dumville of the Cornell Medical Center. Brock knew the physiologist by reputation, and was only too glad to explain his work.

"You're of course familiar, doctor," he said, "with the difference between lung tissue and gill tissue. For one thing, gill tissue has no mucus-secreting cells to keep the surfaces moist when out of water. Hence the gills dry and harden, and no longer pass oxygen one way and carbon dioxide the other, as they should. But the gills of many aquatic organisms can be made to function out of water by keeping them moist artificially. Some of these forms regularly come out of water for considerable periods, like the fiddler crab and the mud skipper, for instance. They're all right as long as they can go back and moisten their gills occasionally.

"But in no case can a lung be used as a gill, to extract oxygen dissolved in water, instead of absorbing it from the air. I've been studying the reasons for this for some years. They're partly

mechanical—the difficulty of getting any fluid as viscous as water in and out of the spongy lung structure fast enough—and partly a matter of the different osmotic properties of the breather cells, which are each adapted to operate on oxygen of a given concentration dispersed in a medium of given density.

"I've found, however, that the breather cells of lung tissue can be made to react to certain stimuli so as to assume the osmotic properties of gill tissue. And that's a batch of my stimulus boiling up there. It consists mainly of a mixture of halogen-bearing organic compounds. A good dose of the vapor of that stuff in the lungs of one of the young alligators in this tank should enable him to breathe under water, if my theory is correct."

"I'd suggest one thing," said Dumville, who had been giving polite but interested "uh-huh's," "which is that when you hold your alligator under water, his glottal muscles will automatically contract, sealing off his lungs to keep out the water, and he'll suffocate."

"I've thought of that, and I'll paralyze the nerves controlling those muscles first, so he'll have to breathe water whether he wants to or not."

"That's the idea. Say, I want to be in on this. When are you going to try out your first alligator?"

THEY TALKED until Sugden began clearing his throat meaningfully. He said: "There's a lot more to see, Dr. Dumville. You've got to take a look at our new extension. We certainly sweated blood getting the city to put up the money for it."

He got Dumville out, and Brock could hear his voice dying away: "... it'll be mostly for new pumping and filtering machinery; we haven't half the space we need now. There'll be two tanks big enough for the smaller cetacea, and we'll finally have some direct sunlight. You

can't keep most of the amphibia without it. We had to take half the damned old building apart to do it; it was originally built as a fort, in 1807, called 'West Battery.' Then it was the famous Castle Garden auditorium for half a century. Jenny Lind sang here. We're having a sesquicentennial celebration next year—"

Brock smiled. The extension was Sugden's monument, and the old boy would never retire until it was officially opened.

Brock turned back to his apparatus. He had just begun to concentrate on it when Sam Baritz stuck his gargoyle's face in. "Say, Voinon, when you gonna put the bichir? It gets in tomorrow."

"Hm-m-m—clear the filefish out of 43, and we'll make up a batch of Nile water this afternoon for it. It's too valuable to risk with other species until we know more about it. And—oh, hell, put the filefish in a reserve tank for the present."

"That means another new label," he thought as he turned back to his chemicals. What would be a good wording? "Esteemed as food . . ." Yes. "Closely related to fossil forms"? Too indefinite. "Related to fossil forms from which most modern fish and all the higher vertebrates are descended." More like it. Maybe he could work in the words "living fossil" somehow. . . .

In his abstraction he hadn't noticed that the flask into which the oily liquid was dripping had been nudged too close to the edge of the table. The slam of a dropped plank from the extension, where construction was still going on, made him start nervously, and the flask came loose and smashed on the floor. Brock yelped with dismay and anger. Three weeks' work was spread all over the floor. He took his morning paper apart and swept up glass and solution. As he knelt over the wreckage, the fumes made his eyes water. In his annoyance

it never occurred to him that a man's lungs aren't so different from an alligator's.

He answered the telephone. It was Halperin, the goldfish man. "I'm making a little trip down South; do you guys want me to pick up some bowfin or gar?" Brock said he'd have to ask Sugden and would call back. "Well, don't take too long; I'm leaving this afternoon. Be seein' ya."

Brock set out on the long semicircular service-gallery walk over the ground-floor tanks that led around to the rear of the building and the entrance to the extension. As an old aquarium man he walked without faltering; he could imagine Dumville's cautious progress, clutching pipes and the edges of reserve tanks while glancing fearfully into the waters below.

BROCK'S LUNGS ached queerly. Must have gotten a whiff of that gunk of mine, he thought. That was a fool thing to do. But there couldn't have been enough to do any real harm. He kept on. The ache got worse; there was a strange suffocating sensation. This is serious, he thought. I'd better see a doctor after I deliver Halperin's message to Sugden. He kept on.

His lungs seemed to be on fire. Hurry—hurry—Dumville's an M. D.—maybe he could fix me up—

He couldn't breathe. He wanted water—not, oddly, in his throat, but in his lungs. The cool depths of the big tank at the end of the semicircle were below him. This tank held the sharks; the other big tanks, for groupers and other giants of the bass tribe, was across from it.

His lungs burned agonizingly. He tried to call out, but only made a faint croaking noise. The tangle of pipes seemed to whirl around him. The sound of running water became a roar. He swayed, missed a snatch at the nearest

reserve tank, and pitched into the shark tank.

There was water in his eyes, in his ears, everywhere. The burning in his lungs was lessening, and in place of it came a cold feeling throughout his chest. The bottom came up and bumped him softly. He righted himself. That was wrong; he should have floated. Then the reason came to him: his lungs were full of water, so that his specific gravity was one point something. He wondered for a confused minute if he was already drowned. He didn't *feel* drowned, only very wet and very cold inside. In any event he'd better get out of here quickly. He kicked himself to the surface, reached up and grabbed the catwalk, and tried to blow the water out of his lungs. It came, slowly, squirting out of his mouth and nostrils. He tried inhaling some air. He thought he was getting somewhere when the burning sensation returned. In spite of himself he ducked and inhaled water. Then he felt all right.

Everything seemed topsy-turvy. Then he remembered the liquid he'd prepared for the alligator: it must have worked on him! His lungs were functioning as gills. He couldn't quite believe it yet. Experimenting on an alligator is one thing; turning yourself into a fish is another—comic-section stuff. But there it was. If he'd been going to drown he'd have done so by now. He tried a few experimental breaths under water. It was amazingly hard work. You put on the pressure, and your lungs slowly contracted, like a pneumatic tire with a leak. In half a minute or so you were ready to inhale again. The reason was the viscosity of water compared with that of air, of course. But it seemed to work. He released the catwalk and sank to the bottom again.

He looked around him. The tank seemed smaller than it should be; that was the effect of the index of refraction of water, no doubt. He walked to-

ward one side, which seemed to recede as he approached it.

TWO NURSE SHARKS were lying indifferently on the bottom across the tank. These brutes were sluggish and utterly harmless. The two sand sharks, the four-footer and the five-footer, had ceased their interminable cruising and had backed into far corners. Their mouths opened and closed slowly, showing their formidable teeth. Their little yellow eyes seemed to say to Brock, "Don't start anything you can't finish, buddy!" Brock had no intention of starting anything. He'd had a healthy respect for the species since one of them had bitten him in the gluteus maximus while he was hauling it into a boat.

He looked up. It was like looking up at a wrinkled mirror, with a large circular hole in it directly over his head. Through the hole he could see the reserve tanks, the pipes—everything that he could have seen by sticking his head out of water. But the view was distorted and compressed around the edges, like a photograph taken with a wide-angle lens. One of the Aquarium's cats peered down inscrutably at him from the catwalk. Beyond the circle on all sides the water surface was a mirror that rippled and shivered. Over the two sand sharks were their reflections upside down.

He turned his attention to the glass front of the tank. That reflected things, too, as the lamps suspended over the water made the inside brighter than the outside. By putting his head close to the glass he could see the Aquarium's interior concourse. Only he couldn't see much of it for the crowd in front of the tank. They were staring at him; in the dim light they seemed all eyeballs. Now and then their heads turned and their mouths moved, but Brock got only a faint buzz.

This was all very interesting, Brock

thought, but what was he to *do*? He couldn't stay in the tank indefinitely. For one thing, the coldness in his chest was uncomfortable. And God only knew what terrible physiological effect the gas might have had on him. And this breathing water was hard work, complicated by the fact that unless he watched carefully his glottis would snap shut, stopping his breath altogether. It was like learning to keep your eyes open under water. He was fortunate in having fallen into a tank of salt water; fresh water is definitely injurious to lung tissue, and so it might have been even to the modified tissue in his lungs.

He sat down crosslegged on the bottom. Behind him the larger sand shark had resumed its shuttling, keeping well away from him and halting suspiciously every time he moved. Two remoras, attached to the shark by the sucking disks on top of their heads, trailed limply from it. There were six of these original hitchhikers in the tank. He peered at the glass front. He took off his glasses experimentally, and found that he could see better without them—a consequence of the different optical properties of water and air. Most of the Aquarium's visitors were now crowded in front of that tank, to watch a youngish man in a black rubber apron, a striped shirt, and the pants of a gray flannel suit sit on the bottom of a tank full of sharks and wonder how in hell he was going to get out of this predicament.

OVERHEAD, there was no sign of anybody. Evidently nobody had heard him fall. But soon one of the small staff would notice the crowd in front of the tank and investigate. Meanwhile he'd better see just what he could do in this bizarre environment. He tried to speak, but his vocal cords, tuned to operate in a negligibly dense medium, refused to flutter fast enough to emit an audible sound. Well, maybe he could come

to the surface long enough to speak and duck under again. He rose to the top and tried it. But he had trouble getting his water-soaked breathing and speaking apparatus dry enough to use for this purpose. All he produced were gurgling noises. And while the air no longer burned his lungs on immediate contact, keeping his head out soon gave him a dizzy, suffocating feeling. He finally gave up and sank to the bottom again.

He shivered with the cold, although the water was at 65° Fahrenheit. He'd better move around to warm up. The apron hampered him, and he tried to untie the knot in back. But the water had swollen the cords so that the knot wouldn't budge. He finally wriggled out of it, rolled it up, stuck his arm out of water, and tossed the apron onto the catwalk. He thought of removing his shoes, too, but remembered the sand sharks' teeth.

Then he did a bit of leisurely swimming, round and round like the sand sharks. They also went round and round, trying to keep the width of the tank between him and them. The motion warmed him, but he tired surprisingly soon. Evidently the rapid metabolism of a mammal took about all the oxygen that his improvised gills could supply, and they wouldn't carry much overload. He reduced his swimnings to an imitation of a seal's, legs trailing and hands flapping at his sides. The crowd, as he passed the front of the tank, was thicker than ever. A little man with a nose that swerved to starboard watched him with peculiar intentness.

A jarring sound came through the water, and presently figures, grotesquely shortened, appeared at the edge of the circle of transparency overhead. They grew rapidly taller, and Brock recognized Sugden, Dumville, Sam Baritz, and a couple of other members of the staff. They clustered on the catwalk,



and their excited voices came to him muffled but intelligible. They knew what had happened to him, all right.

He tried by sign language to explain his sad predicament. They evidently thought he was in a convulsion, for Sugden barked, "Get him out!" Baritz's thick forearm shot down into the water to seize his wrist. But he wrenched loose before they had him clear of the surface, and dove for the bottom.

"Acts like he don't *wanna* come out," said Baritz rubbing a kicked shin.

Sugden leaned over. "Can you hear me?" he shouted.

Brock nodded vigorously.

"Can you speak to us?"

Brock shook his head.

"Did you do this to yourself on purpose?"

A violent shake.

"Accident?"

Brock nodded.

"Do you want to get out?"

Brock nodded and shook his head alternately.

Sugden frowned in perplexity. Then he said, "Do you mean you'd like to, but can't because of your condition?"

Brock nodded.

SUGDEN continued his questions. Brock, growing impatient at this feeble method of communication, made writing motions. Sugden handed down a pencil and a pocket notebook. But the water immediately softened the paper so that the pencil, instead of making marks, tore holes in it. Brock handed them back.

Sugden said: "What he needs is a wax tablet and stylus. Could you get us one, Sam?"

Baritz looked uncomfortable. "Cheez, boss, what place in N'yawk sells those things?"

"That's right; I suppose we'll have to make it ourselves. If we could melt a candle onto a piece of plywood—"

"It'll take all day for me to get the candle and stuff and do that, and we gotta do something about poor Voionon—"

Brock noticed that the entire staff was now lined up on the catwalk. His beloved was well down the line, almost out of sight around the curve. At that angle the refraction made her look as broad as she was tall. He wondered if she'd look like that naturally after they'd been married awhile. He'd known it to happen. No, he meant if they got married. You couldn't expect a girl to marry a man who lived under water.

While Sugden and Baritz still bickered, he had an idea. But how to communicate it? Then he saw a remora lying below him. He splashed to attract the attention of those above, and sank down slowly. He grabbed the fish in both hands, and kicked himself over to the glass. The remora's nose—or, to be exact, its undershot lower jaw—made a visible streak on the pane. Brock rolled over on his back, and saw that he was understood; Sugden was calling for someone to go down to the floor and read his message.

His attempt at writing was hampered by the fish's vigorous efforts to escape. But he finally got scrawled on the glass in large, wabbly capitals:

"2 WEIGHTED STEPLADDERS  
... 1 WEIGHTED PLANK ...  
1 DRY TOWEL."

While they were getting these, he was reminded by his stomach that he'd had no solid food for eighteen hours or thereabouts. He glanced at his wrist-watch, which, not being waterproof, had stopped. He handed it up, hoping that somebody would have the sense to dry it out and take it to a jeweler.

The stepladders were lowered into the tank. Brock set them a few feet apart, and placed the plank across their tops. Then he lay on his back on the plank, his face a few inches below the surface. He

dried his hands on the towel, and by cocking one leg up he could hold a pad out of water against his knee and write on it.

He explained tersely about the accident and his subsequent seizure, and told what had happened chemically to his lung tissues. Then he wrote: "As this is first experiment on living organism, don't know when effect will pass, if ever. Want lunch."

Baritz called to him: "Don't you want us to take the shoks out foist?"

Brock shook his head. The claims of his stomach were imperious, and he had a vague hope of solving his problem without disturbing the fish. Then, too, though he'd have hated to admit it, he knew that everybody knew that the sharks weren't maneaters, and he didn't want to seem afraid of them. Even a sensible man like Vernon Brock will succumb to a touch of bravado in the presence of his woman, actual or potential.

HE RELAXED, thinking. Sugden was ordering the staff back to its work. Dumville had to leave, but promised to be back. By and by the faithful Baritz appeared with what Brock hoped was food. Brock's position struck him as an uncomfortable one for eating, so he rolled off the plank and stood on the bottom of the tank. Then he couldn't reach the surface with his hand. Baritz thrust a lamb chop on the end of a stick down to him. He reached for it—and was knocked aside by a glancing blow from something heavy and sandpappy. The lamb chop was gone—or not quite gone; the larger shark had it over in a corner. The shark's jaws worked, and the bone sank slowly to the bottom, minus its meat.

Baritz looked helplessly at Sugden. "We betta not try meat again. Those shoks can smell it, and they might get dangerous if we got them woiked up."

"Guess we'll have to get the net and haul them out," said Sugden. "I don't

see how he could eat mashed potatoes under water."

Brock swam up, and made the motions of peeling and eating a banana. After Baritz had made a trip for bananas Brock satisfied his hunger, though he found that swallowing food without getting a stomachful of salt water required a bit of practice.

The crowd in front of the tank was larger, if anything. The little man with the wry nose was still there. His scrutiny made Brock vaguely uneasy. He'd always wondered what a fish on exhibit felt like, and now, by George, he knew.

If he could get out and do a few months' research he might be able to find how to counteract the effect of the lung gas. But how could he perform experiments from where he was? Maybe he could give directions and have somebody else carry them out. That would be awkward, but he didn't want to spend the rest of his life as an exhibit, loyal as he was to the Aquarium. A better idea might be to rig up some sort of diver's helmet, to be worn out of water with the water inside—if he could find a way of oxygenating the water.

Baritz appeared again, and put his head down close to the water. "Hey, Voinon!" he said. "'God's' coming down here!"

Brock was interested, though not by the theological aspects of the statement. "God," better known as J. Roosevelt Whitney, was the president of the New York Zoological Society, and the boss of Minnegerode, the director of the Aquarium (in Bermuda at the moment). Minnegerode was Sugden's boss. J. R., the head of this heirarchy, owned among other things a bank and a half, fifty-one percent of a railroad, and the finest walrus mustache in Greater New York.

Baritz put on his child-frightening grin. "Say, Voinon, I just thought. We can advatise you as the only moimaid in captivity!"

Brock throttled an impulse to pull his helper into the tank, and motioned for his pad. He wrote: "The male of 'mermaid' is 'merman,' you ape!"

"O. K., a moiman, unless— Oh, good aftanoon, Mista Whitney. Here he is in this tank. Anything I can do, Mista Whitney?"

THE FAMOUS mustache floated above the water like a diving seagull. "How ah you, my deah boy? Ah you making out all right? Don't you think we'd bettah get the sharks out right away? They're perfectly harmless, of course, of course, but you might accidentally jostle one and get nipped, ha-ha."

Brock, who, at thirty-two, was pleased rather than irked at being called "my boy," nodded. J. R. started to get to his feet, not noticing that one foot was planted on Brock's rolled-up apron, while the toe of the other was caught in it. Brock received a tremendous impact of sound and current, and through the sudden cloud of silver bubbles saw J. R.'s massive rear descending on him. He caught the man and shoved him up.

As the shiny pink head cleared the surface, he heard a terrified scream of "Glugg . . . blubb . . . O Lord, get me out! The sharks! Get me out, I say!"

Brock boosted and Baritz and Sugden heaved. The dripping deity receded down the catwalk, to Brock's distorted vision broadening to something like a *Daily Worker* cartoon of Capital. He wished he knew whether J. R. would be angry or whether he'd be grateful for the boost. If he inquired about the apron it might be embarrassing.

The cold was biting Brock's innards, and the bananas seemed to have turned into billiard balls in his stomach. The little man with the nose was still there. Brock hoisted himself on his plank and wrote directions: "Raise temperature of feed water slowly. Get me

thermometer. Will signal when temperature is right. Should be about 90 F. Run more air lines into tank to make up for lowering oxygen saturation point. Put sharks in reserve tank for present; warmth might harm them, and I need all oxygen in tank."

By nine p. m. all was done. The tearful Miss Engholm had been shooed away. Baritz volunteered to spend the night, which proved the most uncomfortable of Brock's experience. He couldn't sleep because of the constant muscular effort required to work his lungs. He tried to think his way out of the mess, but his thoughts became more and more confused. He began to imagine things: that the little man with the nose had been there for no good, for instance. Just what, he couldn't think, but he was sure it was something. Again and again he wondered what time it was. At first he aroused Baritz to tell him at intervals, but toward two o'clock Sam went to sleep on the catwalk, and Brock hadn't the heart to awaken him.

Lord, would the night never end? Well, what if it did? Would he be any better off? He doubted it. He looked at his hands, at the skin of his fingers swollen and wrinkled by soaking. A crazy idea grew on him with the force of an obsession. His hands would turn into fins. He'd grow scales—

It was getting light. Then all these people would come back to torment him. Yes, and the little man with the nose. The little man would put a worm on a hook and catch him and eat him for supper—

UNDER sufficiently strange circumstances the human mind is often thrown out of gear, and spins ineffectually without definite relationship to external things. Perhaps that is because of a weakness in the structure of the mind, or perhaps it is a provision by nature to disconnect it to avoid stripped gears when the load is too heavy.

People were coming in; it must be after nine o'clock. People on the catwalk overhead were talking, but he couldn't understand them. His lungs weren't working right. Or rather his gills. But that was wrong. He was a fish, wasn't he? Then what could be wrong with them? All these people who had it in for him must have turned off the oxygen. No, the air lines were still shooting their streams of tiny bubbles into the tank. Then why this suffocating feeling? He knew; that wasn't air in the air lines; it was pure nitrogen or helium or something. They were trying to fool him. O Lord, if he could only breathe! Maybe he had the fish's equivalent of asthma. Fish came to the surface and gulped sometimes; he'd try that. But he couldn't; his experiences of the preceding day had given him a conditioned reflex against sticking his head out, which his shattered reason was unable to overcome.

Was he going to die? Too bad, when he had been going to marry Miss Engholm and all. But he couldn't have married her anyway. He was a fish. His face twisted in an insane grin at the grotesque thought that struck him.

He was dying. He had to get oxygen. Why not go through the glass? But no, any intelligent fish knew better than to try to make holes in the glass. Then he saw the little man with the nose, standing and staring as he had yesterday. He thought, you'll never catch me on a hook and eat me for supper, you piscicide; I'm going to get you first. He fished out his jackknife and attacked the pane. A long scratch appeared on it, then another, and another. The glass sang softly. The people behind the little man were moving back nervously, but the little man still stood there. The song of the glass rose up—up—up—

The glass, with a final *pinning*, gave, and several tons of green water flung themselves into the concourse. For a

fleeting second Brock, knife in hand, seemed to be flying toward the little man. Then the iron railing in front of the tank came up and hit his head.

He had a vague sense of lying on a wet tile floor, while a foot from his ringingly dead a stranded remora flopped helplessly—

HE WAS LYING in bed, and Sugden was sitting beside him smoking. The old man said: "Lucky you didn't get a fractured skull. But maybe it was a good thing. It put you out during the critical period when your lungs were changing back to normal. They'd have had to dope you anyway, out of your head as you were."

"I'll say I was out of my head! Wait till I see your friend Dumville; I'll be able to describe a brand-new psychosis to him."

"He's a physiologist," replied Sugden, "not a psychologist. But he'll want to see you just the same."

"The doctor tells me you'll be out tomorrow, so I guess you're well enough to talk business. J. R. didn't mind the ducking, even after the exhibition he made of himself. But there's something more serious. Perhaps you noticed a small man with a crooked nose in front of the tank while you were there?"

"Did I notice him!"

"Well, you nearly drowned him when you let the water out of the tank. And he's going to sue us for damages—way up in five or six figures. You know what that means."

Brock nodded glumly. "I'll say I do! It means that I don't get your job when you retire next winter. And then I can't get ma— Never mind. Who is this little guy? A professional accident faker!"

"No; we investigated him. He was a trapeze artist in a circus until recently. He says he was getting too old for that work, but he didn't know any other.

Then he hurt his back in a fall, and he's been on relief since. He just came in to watch you because he had nothing else to do."

"I see." Brock thought. "Say, I have an idea. Nurse! Hey, nurse! My clothes! I'm going out!"

"No, you're not," said Sugden firmly. "Not till the doc says you can. That'll only be tomorrow, and then you can try out your idea. And I hope," he added grimly, "that it's better than the last one."

Two days later Brock knocked on Sugden's door. He knew that Sugden and J. R. were in there, and he could guess what they were talking about. But he had no fears.

"Morning, Mr. Whitney," he said.

"Oh . . . ah . . . yes, my deah boy. We were just talking about this most unfortunate . . . ah—"

"If you mean the suit, that's off."

"What?"

"Sure, I fixed it. Mr. Oscar Daly, the plaintiff, and I are going into a kind of partnership."

"Partners?"

"Yes, to exploit my discovery of lung conversion. I supply the technique so that he can exhibit himself in circuses as Oscar the Merman. He dopes himself with my gas and parks in a tank. Our only problem is the period when the effect of the gas wears off and the lungs

return to normal. That, I think, can be licked by the use of any of several anæsthetic drugs that slow down the metabolism. So, when the human fish begins to feel funny, he injects himself and passes out peacefully, while his assistants fish him out and wring the water out of his lungs. There are a few technical details to work out on my alligators yet, but that'll be all right. I'll wear a gas mask. Of course," he added virtuously, "any monetary returns from the use of the process will go to the Zoölogical Society. Oscar says to send your lawyer over any time and he'll sign a release."

"Why, that's fine," said Whitney, "that's splendid, my boy. It makes a big difference." He looked significantly at Sugden.

"Thanks," said Brock. "And now, if you'll excuse me, Sam and I have some fish to shift. So long, cheerio, and I hope you drop in often, Mr. Whitney." He went out, whistling.

"Oh, Vernon!" the head aquarist called after him. "Tomorrow's Sunday, and I'm driving my family out to Jones' Beach. Like to come along for a swim?"

Brock stuck his grinning head back in. "Thanks a lot, Clyde, but I'm afraid I might carelessly take a deep breath under water. And—I've had enough swimming to last me the rest of my unnatural life!"



# NO JOKE

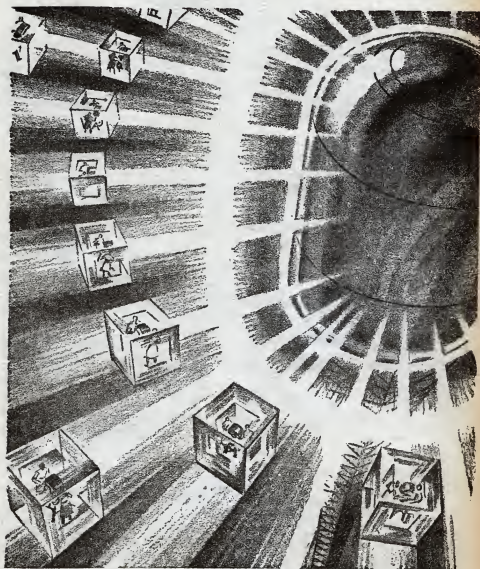


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# Simultaneous Worlds



*The Conclusion of*

**Nat Schachner's**

*new Two-part serial*



## Synopsis:

Early in the twenty-first century, the Americas had united under a single, democratic government to form a state so powerful in science and military resources that the European Warlord, Oothout, dared not attack. Envyng their wealth of material and science, fearful that his own people, influenced by the freedom of the Americas, might rebel, he still held back because of that military power America held available.

Then, suddenly, millions throughout America go mad. Whole regions flare up in abrupt, spontaneous madness. Parents destroy their children, screaming that Youth sought to enslave Age. Vermont and New Hampshire attack Maine, the farmers shouting that Maine sought to steal the tourist traffic.

President Winslow and his cabinet call in Douglas Aiken, brilliant young psychologist, in hopes that he may see some solution, some reason for this madness. In the meantime, Oothout, seeing the Americas disintegrate, is hastily gathering his forces, for the madness has not struck Europe.

Aiken calls on Dr. Ernest Coss, America's most brilliant physicist, for Aiken has an idea that some being from another world—universe—dimension—from somewhere else, is causing the trouble. Coss, by concentrating cosmic rays in a device he has invented, succeeds in forming a visible image on a specially prepared screen. An image that shows a strangely like-yet-unlike Earth. And—a being, similarly like-and-unlike a man, in a cube of transparent stuff, shooting queer, polychrome rays of madness across America.

This, Coss suddenly realizes, is a projection of Earth—an Ultra-Earth. On the wave theory of matter, each atom extends to infinity and back in a system of canceling waves. Coss modifies this, and says it extends to infinity—but not back. Ultra-Earth represents the other

end of the wave-chains that make Earth. Ultra-Earth, they see in Dr. Coss' visor, is more advanced, larger, the higher end of the chain. Coss postulates that each man of Earth has his counterpart in a man of Ultra-Earth; that each nation has its counterpart. The being in the cube—Iskra—Coss believes to be a scientist working in the interests of Ultra-Europe. There, too, Ultra-America is too strong for Ultra-Europe to attack. But by attacking this lesser America with their more advanced weapons—the rays of madness—disorganization is set up that reacts on Ultra-America. Similar disorganization is introduced through the interlocked wave-chains, and Ultra-America becomes vulnerable to Ultra-Europe's attack, as America falls to Oothout.

Coss and Aiken build a cube similar to that used by Iskra, and set out to reach Ultra-America, since there, science able to meet and, perhaps, defeat Iskra may be found. They take off in the cube, and blackness overwhelms them.

## PART II.

**D**OUGLAS AIKEN emerged slowly from the star-shattered blackness into which he had fallen. His head ached horribly, and every fiber of his being seemed to have been wrenched apart by his terrific translation into ultra-space.

Men bent over him, alien of countenance, and clad in single flowing garments of shimmering purple that were caught up at the waist with belts of gold. Their faces were grim with impending tragedy, but the startled wonder of his sudden apparition in their midst had not yet left their eyes.

"By Erdu!" exclaimed one as Doug opened his eyes with feeble effort. "The stranger-being is coming to life." He spoke in English, stressing each vowel with a pleasant liquidity.

"Look, Du-lakon," ejaculated another. "He is the mirror-image of yourself. Had you a brother, I would say that this is he."

Slowly Doug struggled to his feet. A young man came toward him. The others fell away and made room. Within the circle that they formed the two men stared at each other open-eyed. A shiver of half fear, half awe, coursed through Doug's still fumbling brain. Were it not for the alien clothes, for a certain softer set to jaw and mouth, he, Douglas Aiken, might have been standing in front of himself. A tense silence had fallen on the spectators.

An almost similar fear leaped in Du-lakon's eyes. "Who are you, and where did you come from?" he demanded. "And why, in Erdu's name, do you appear like a mirror image of myself?"

Doug swayed, holding his throbbing head. Memory came back in little spurts. The tragedy back on Earth—Dr. Ernest Coss—the feverish building of the cube—their translation along their own electron-waves into an Ultra-Earth—the sudden disappearance of both cube and Coss—and then the crash.

He stared again at this man who was strangely himself. "Du-lakon!" he whispered the name. "Even *that* resembles my own. I am Douglas Aiken of Earth, and you . . . you are closer to me than my brother. You are myself, even as I am *you*. We are both but segments of the same wave trains, cut off from each other until now by insurmountable barriers of space and time." It was somehow terrifying, in spite of the fact that Doug had been prepared on theoretical considerations for just such an eventuality.

Du-lakon frowned blankly. Almost, Doug could have sworn it was his own frown. "Your words leave me in a fog. Your materialization in the very midst of our Council barely missed Wal-tor, my assistant. Indeed, had it not been for your most curious resemblance to

myself, you would have been slain forthwith as a spy from Ontho."

"I am no spy," Doug assured him. "In fact, I have come to warn you—and to receive aid. But first, what has happened to my friend, Dr. Ernest Coss, who accompanied me across the gulf? And where is the cube in which we traveled?"

The men of Ultra-Earth looked at each other askance. Astonishment shone in their eyes. Du-lakon shook his head. "You came alone, and without a cube." He laid a kindly hand on Doug's shoulder. "Suppose you tell us about your strange journeying. Perhaps we may be able to help you—and your friend, if he still lives."

DOUG'S LIPS twitched. If anything had happened to the slangy little physicist— He pulled himself together. His mission to this other world overshadowed all personal griefs. The lives of more than a billion people depended upon the success or failure of this mighty journey. That came first.

"O. K.!" he agreed. "I'll give it to you in as short a compass as I can."

Rapidly he sketched the history of Earth, and the strange hypnotic madness that had seized upon the hitherto peaceful people of the Americas. Briefly he outlined the researches of Dr. Coss and his discovery that cosmic rays were in fact photon bullets from another universe, superimposed upon Earthly electrons. He told them of the pictures they had obtained of Ultra-Earth, of the overwhelming conclusion that both universes were but the opposite ends of simultaneous matter-waves in different space-times.

"You mean," stared Wal-tor, his blond face expressing his amazement, "that I, too, have a counterpart back on that Earth of yours, even as you resemble Du-lakon?"

Doug grinned. "Not only you," he pointed out, "but each and every one of

you in different guise walk the streets of American cities, or"—he added grimly—"are already dead under the madness and the bombs of Oothout."

But when he came to the appearance of the Ultra-Universe cube and its strange occupant, a buzz of angry voices ran around the listening men.

"That must be Iskra, Ontho's next in command," said Du-lakon softly. "I'm beginning to understand now. What you tell us dovetails only too well with our problems here on Erdu. Amrique, our continent, has always been peaceful and civilized. But the other continent, Ooropah, is a single slave state under the iron domination of Ontho. He hates us with a venomous hate, but has never before dared to attack us. Though we are a peaceful folk, our science is mighty. In a fair conflict we could have destroyed him utterly."

He began to pace up and down in agitation, while his fellows muttered fiercely among themselves. "But Ontho has used cunning to destroy us. The fortuitous discovery of your Universe, and the knowledge that all our matter-waves have lesser simulacrum in your dimensions, has given him his weapon. He sent Iskra among you. Iskra used our science to control your brains, to whip you to madness. By your destruction, we of Amrique are necessarily weakened, so as to fall an easy prey to Ontho's hordes."

Something in the ring of Du-lakon's voice, in the somber looks of his comrades, brought quick alarm to Doug.

His long, lithe arm whipped out, caught his counterpart by the shoulder, whipped him around so that they faced each other.

"Good Lord!" he demanded hoarsely. "Has Ontho already started his campaign?"

There was bitterness in Du-lakon's eyes. "Started?" he groaned. "It is practically over." He indicated the little group of a dozen Amriquians. "We

are almost all who are still left free of the vast cities that once adorned our land. Look for yourself!"

As Doug's clutching arm fell away, he swung to an oblong of gray metal that made a panel within the white surface of the nearby wall. He touched a button.

Immediately the inside of a laboratory flashed upon the screen. An Amriquian lifted his overheavy head from a bench. His face was drawn with fatigue; his eyes could barely open. The great machines that fenced him in were motionless.

"It is too late, Du-lakon," the image spoke in lifeless tones. "All the city of Issla is infected with a mysterious illness. I alone of all our millions have still strength enough to open the visor plate. When Ontho comes he will find an easy victory." Then his head fell back again, and he moved no more.

THROUGH the open frame, stretching vastly, could be seen the towered city of Issla. Huge structure on structure, white with an unimaginable beauty, graceful in every curve and line. But within all that breath-taking loveliness, nothing stirred. No shining cubes cleft the ambient air; no gracious figures in purple garments moved through the flower-bordered thoroughfares. All was silent. A great hush brooded over the far-flung city.

"That," explained Du-lakon grimly, "is but a sample of the strange, sapping illness that has descended upon Amrique within the past several weeks. No one could decipher its cause; no cure has been found. Now for the first time we know what it is—when it is too late."

"It is never too late," Doug declared vehemently.

They smiled at him with the smile of men who are already facing death. "I told you the city of Issla was but a sample," said Du-lakon. "Look at these others." He stabbed at other buttons on the screen control.

A great metropolis flamed in ruin before Doug's horrified eyes. Above its doomed spires hovered hordes of glittering cubes, each guided by dark, squat men in green and yellow. Gigantic streamers of flame jetted from the shimmering sides, plunged downward with the velocity of light. Wherever they touched, huge white buildings crumbled into fiery dust. Amriquians, too weak to move or lift a hand in self-defense, vanished in the flaring holocaust.

Methodically the war cubes of Ooroo-pah completed their dreadful task of destruction. The area of smoking ruin widened. Then all was over. Only a few wisps of smoke curled upward from a charred and level plain.

Doug felt sick. Low growls came from the men who watched with him. Du-lakon said dully, "That was once Arilu, one of the mightiest of our cities. A million of our fellows have just gone to their deaths. Ontho has already struck!"

"Isn't there anything we can do?" Doug groaned aloud.

Du-lakon shrugged. "Nothing—except to die like men, fighting to the end. Only a dozen of us—those whom you see—are left of the great laboratories of Alkinor. The others are all in the grip of the epidemic weakness; neither living nor dead, easy prey to the war cubes of Ontho. We escaped to this last stronghold in all Amrique, determined to sell our lives as dearly as possible."

For the first time, Doug took stock of his physical surroundings. The great room into which he had been catapulted was sheathed in white metal that glowed with an inner iridescence of its own. Great machines rimmed the walls; machines of strange and complicated patterns at whose purposes he could not even hazard a guess. Then he stared out of the open frame at the surrounding terrain.

It was a breath-taking vista. Like a greater Eiffel, the tower in which they were, reared itself on great metallic stilts

over a mighty mountain. Ten thousand feet below, jagged hills tumbled in wild confusion to the limits of the horizon. Nothing stirred, nothing moved in all that wilderness. A red sun, larger than that which flooded Earth with light, glittered balefully overhead.

"THIS IS our astronomical laboratory," explained Du-lakon. "It was built in these uninhabited mountains to get steadiness of base and the necessary altitude for our work. We felt, when we escaped, that this would be the last place to be attacked by the triumphant hordes of Ooroo-pah."

"Then we stay here until they find us—like rats in a trap?" exclaimed Doug. "There is nothing else to do," shrugged the blond Wal-tor. "We have certain defenses—"

"And in the meantime both of our worlds go down to flaring ruin. Damn, if only Dr. Coss were here, alive; he'd find a way!"

They stared at each other in unhappy silence. Then Du-lakon said: "I do not know what your Doctorcoss could do. We too had a great scientist, the greatest in all Amrique, who might have pointed out a path to avert the menace."

"But Er-koss is dead," groaned Wal-tor. "His laboratory on the farther ocean is dark and silent. He answers none of our frantic signals."

"Er-koss!" repeated Doug with wrinkled forehead. "Er-koss! Good Lord! That sounds suspiciously like Ernest Coss. Each the greatest scientist in his universe." New hope flared suddenly in his eyes. "I'll bet that's where he went. Why didn't I think of it before? Naturally—Dr. Coss was pulled along his electron trains toward his counterpart. As for the cube, since it had no organized duplicate on Ultra-Earth, its constituent parts scattered along trillions of separate waves to seek their destinations."

He gripped Du-lakon's arm with fierce

eagerness. "Quick! Have you some means of transportation to get me there?"

The man of Ultra-Earth made no move. His glance was filled with deep understanding. "You forget, my more than brother," he said softly, "that Erkoss is dead."

The Earthman's jaw set in grim, hard lines. "Nevertheless," he declared, "I'm going to find them out."

"It is too late." Something vibrated in Du-lakon's voice. "Look through the frame."

Doug stared out over the wilderness of tumbling mountains. In the distance, coming swiftly over the jagged horizon, were tiny specks. Even as he watched they grew, hurtling through the red noonday with frightful speed. Hundreds of shining, transparent cubes, converging like winged wasps upon the solitary tower, each with its crew of green-and-yellow-uniformed men. The battle hordes of Ontho!

"They found us at last," sighed Wal-tor. His blond face was pale, taut.

But now that death had caught up to them, Du-lakon moved with swift certitude. Orders crackled from his lips. "Set up the repellent screens at once, Wal-tor. You, Ro-lai, see to the projectors. Cam-bru, attend to the potentials." To each, he assigned a post, and each man sprang swiftly to the great machines without a word, without a murmur.

The laboratory woke to rocking life. Gigantic tubes flared with blue and golden flames; huge wheels spun in dizzying concentric circles; mighty orbs expanded and contracted with irresistible inner force. Du-lakon sped to the open frame, near which a master panel glowed with a confusion of varicolored lights. Doug ranged at his side, tiny Earth automatic in hand. A curious sense of futility overwhelmed him.

"How long can you hold them off?" he asked quietly.

Du-lakon shook his head. "I do not know," he confessed. "We have defenses, but there are too many of the enemy. Here they come."

ON THEY DROVE, hundreds of shiny war cubes, powered by Erdu's magnetic forces. As they hurtled through the rushing atmosphere, they spread fanwise to invest the beleaguered tower from all directions.

The young Amriquan touched an oblong of orange light upon the panel. At once a weaving screen of force blazed outward from the smooth round of the structure, wrapped it round in cometary splendor. It was not a moment too soon.

The invaders from Ooroopah seemed suddenly to twist upon their axes. Long lances of green flame leaped out from their sides, crashed across the intervening void, converged with a thunder of mighty armaments upon the solitary tower. Involuntarily Doug ducked. It did not seem possible that any building made by man or superman could resist the seething maelstrom of their impact.

The heavens were obliterated with searing madness. The great tower staggered and rocked unsteadily on its base. Doug flung his arm over his eyes to keep from being blinded, to shield from his view the last destruction of themselves. He was deafened, blasted in every atom.

Grimly he tore his arm away. If it were the end, he would face it like a man, like— He swore crackling Earth phrases in sheer amazement.

Du-lakon had not shifted from his position at the controls. His face had not changed its calmly serious expression. Outside, the maelstrom roared and battered; the very elements of the atmosphere disrupted into primal electrons. But the furious fires stabbed in vain against the soft glow of the protective screen of force. A mere shimmer of luminescence, it thrust back the

mighty turmoil as with an invisible shield, held intact its impalpable mesh.

"Damn!" husked Doug. "That is something. But how about taking the offensive?"

Du-lakon smiled slightly. He touched another oblong that shone with a pale-blue light.

The protective vibrations expanded in an exploding bubble. Little balls of blue fire shot out like rockets from a Roman candle, sprayed swiftly into the void.

The attacking cubes dove in sudden terror at their coming. But three were a trifle slow. The tiny, innocuous-seeming balls of blue contacted their lambent surfaces. There were little puffs.

At once the spheres of flame flattened and spread in a thin film of running blue fire over the doomed cubes. The blue grew brighter, insupportable in its dazzlement. Relentlessly it ate into the quartz. The men within flung desperately from side to side. The cubes gyrated and twisted in frantic effort to rid themselves from the clinging death. In vain!

There was a last sudden outburst of explosive flame, a plummetlike drop to the mountains beneath—smashing, splintering concussions that reared their hideous sounds above even the screaming welter of destruction.

"Good Lord!" breathed the Earthman. "You've put three out of commission. But the rest are still coming on."

Whatever else might be said about the soldiers of Ontho, they were not cowards. A fanatic fury possessed them, drove them on in the face of the terrible destruction of their comrades.

On they came, slashing headlong for the tower of the Amriquians, hurtling their green thunderbolts before them. Two more went down in flaming ruin, but still they came.

"Your screen is sagging," the Earthman said suddenly.

His Amriquian counterpart nodded. "Our power is almost gone," he replied quietly. "To build up that screen of repulsion and generate the electron bolts requires enormous energy. Our potentials are ebbing. In another half hour or so, the sub-space rays of the enemy will break through and flash us to extinction."

DOUG CLENCHED sweaty palms. He felt peculiarly helpless in the presence of these outlandish weapons. If only he had his hand on the steering jet of a familiar rocket plane of Earth, with his finger close to the firing pin of a rocket torpedo, he'd feel better, no matter how great the odds. But here—

The interior of the laboratory was a smoky madness. The bare dozen of trapped men worked with superhuman strength at their machines. The dust of disintegration bellied in from the sagging screen, covering everything with a fine gray soot. They seemed like sweaty demons laboring in a pitchy fog. New machines were feverishly assembled; hooked into series to stem the tide of waning power. Metal desks, furniture, the walls themselves were torn down with electric blasts and thrust into the hungry maws of sub-atomic furnaces to gain the last ounce of energy.

Briefly the screen flared outward; again the electron bolts took their toll.

But it was a losing fight. More than fifty of the cubes of Ooroopah had rocketed like blazing meteors to the cruel depths beneath. But hundreds more held grimly on, diving and slashing with green blasts at the fast-weakening defenses.

Du-lakon watched them come and come again in battering waves of attack. His eyes were grave, unfathomable. They flicked to his instrument board, where already the potentials measured perilously low. Then, with grave, unhurried calm, he turned to his Earthly counter-



part, placed kindly hand on his shoulder.

"In another five minutes," he said, "it will be over. Our maximum peak has been reached, yet it cannot take up the load of the sub-space attack. In five minutes more, at the most, they will break through. I am sorry—for your sake more than my own. It was our stupidity—or rather our innocence—in the face of Ontho's secret preparations, that is to blame. As the result, you of the Americas, on a lesser plane, will have to suffer. Farewell, my brother, we can die but once."

"Is there nothing we can do?" Doug blurted out in helpless wrath. He did not care for himself; but the thought of two great civilizations, until now unaware of their coexistence, doomed to slavery and destruction because he had been too late, misted his eyes.

"Nothing," Du-lakon repeated softly. "Only Er-koss could have found a way out now—and Er-koss is dead."

The rounded roof of the tower overhead seemed suddenly to blast open. The sun beat momentarily upon their startled faces, blanked out again. The gray fog of disintegration swirled out into the cold, thin atmosphere outside, coalesced again around a blurred and half-seen shape that plunged downward toward the floor.

"I wouldn't be too sure of that, Du-lakon," came a strange voice out of the whirling haze.

Doug jerked around. His automatic snouted in his hand. His finger whitened on the trigger.

But Du-lakon's great cry stayed the bullet. "Er-koss!" he had screamed.

THE THICK DUST fell away. A cube emerged into view; a glittering, four-square vehicle that gleamed through the fog and smoke like a faceted diamond.

A slide opened even as Du-lakon cried out. Two men stepped out. One

was an Amriquan, of grave and benignant mien. A golden sun darted golden rays on the breast of his purple garment in symbol of authority. White hair and patriarchal white beard enhaloed a face that, for all its obvious years, betrayed not a single wrinkle. Blue eyes, light as a summer sea, were clouded now with thought.

"Naturally!" he said quietly. "I have work to do before I die."

But Doug's vision darted past him, clung incredulously to the slighter man who tumbled out of the cube behind Er-koss. A spare, thin man in his middle fifties, with a gray little beard that twisted sardonically to one side, and a shattered pince-nez that dangled from a black silk cord. Even as the young Earthman stared, the man grinned, and his fingers, still showing the scar of a recent wound, caught instinctively at the broken lenses.

"Dr. Coss!" whooped Doug. "By the nine moons of Jupiter, where have you come from? I thought you were—"

The little Earth-scientist widened his grin. It was impish, mocking. "I know," he finished for him, "I was supposed to be also dead. But like my . . . uh . . . friend, or other self, Er-koss, I don't die easily."

The next second Douglas Aiken was pounding him on the back in an ecstasy of released emotion. "Lord, but it's good to see you again, even if we have only five more minutes to live. But I thought you were under the influence of—"

"Iskra?" A shadow flitted over the birdlike features, lifted. "I was—until Er-koss got through with me." His voice took on an oddly humble note. "And I thought I was a scientist! Doug, I don't hold a candle to him. If there were a dozen other universes, I don't believe you could find his peer in any of them. My only pride now consists in the knowledge that I am an extension of him, even though it be on a much

lower plane. I fell into his lap, so to speak, in his laboratory on the farther sea. It took him split seconds to recover his poise, to determine what was wrong with me. Before I could do any harm, obedient to Iskra's hypnotic will, I was strapped under a healing ray; the synapses of my addled brain sprang back to their normal relays; and I awoke, once more myself and free from the madness."

Doug stared past him at the cube in which they had come. It seemed oddly familiar; quite different in luster and equipment from the flying vehicles of Erdu. Something choked inside of him; almost he was afraid to speak.

"Isn't . . . isn't that," he said huskily, "something like . . . like our own cube?"

"Like it!" laughed Coss. "My young friend, it *is*."

"But how . . . how?" Doug's head was bursting. For the moment he forgot the death that crashed and flamed outside. "I thought it had scattered along its individual electron trains."

"I told you Er-koss was a great scientist. His instruments detected within his laboratory the alien elements from our universe. Even as we had our counterparts on Erdu, so had the crystal laminations of our cube and the apparatus by which it was motivated. He employed a reduplication machine to assemble the constituent atoms in the form with which they had originally been impressed. There was no chance to explain the process to me. Time was too limited." Coss smiled wryly. "I doubt if I would have understood if he *had* explained."

ER-KOSS approached them in the company of Du-lakon. They had been consulting rapidly while the two Earthmen met in explanation. Similar stern resolves were painted on their countenances.

"Precious seconds are slipping away,"

said Er-koss in his deep, grave voice. "My young friend informs me that already their screens are blasting away under the sub-space units of the Ooroo-pans. As we dived from the hundred-thousand-foot level to trip open the astronomical cupola of the tower, my visors showed thousands more of Ontho's war cubes hurrying up to reinforce their squadrons. The fate of Amrique is sealed."

"If we had time," groaned Doug, "we could build more cubes and take all of us back to Earth."

"There is no time for that," Er-koss said with decision. "But there is time for Ernest Coss, with my assistance, to set up the transmission apparatus to return this single cube to its initial starting point."

The young psychologist took a deep breath. "Good!" he said evenly. "In that case you and Dr. Coss return. Back on Earth, your superscience may find a method of stopping the inferior forces of William Oothout. Perhaps even yet you may be in time to retrieve a hopeless situation. By destroying Oothout you will so weaken Ontho here that the tide will turn; even as he has done through the agency of Iskra."

"And you—" cried Dr. Coss in sudden alarm.

"I will stay here and help the others fight to the last."

"I won't have it," stormed Coss. "Either you go back with us, or I stay also."

"You forget," Doug pointed out. "If Du-lakon dies, my usefulness is at an end, no matter where I am. We are parts of one set of waves."

"Then he comes too. We'll squeeze in somehow."

"My place," said Du-lakon, with pale, set features, "is with my comrades."

Wal-tor jerked forward. "It is not," he said harshly. "It is your duty to save Amrique, to rescue that other world from the ruin that descended upon it."

Do not worry about us. We'll hold off the hordes of Ontho until the very end."

The others crowded round, shouting assent. Their faces, blackened with soot, shone with the exaltation of self-sacrifice.

"I won't do it," cried Du-lakon.

"Fools!" thundered Er-koss. His countenance was transfigured with an awful wrath. "While you are disputing, our common end approaches on winged seconds. And with us, the end of two worlds."

Simultaneously, all heads turned to the transparent frame. The sky was black with darting, slashing cubes. Thousands where there had been hundreds before. Green blasts crisscrossed in blinding confusion; the roar of hurtling bolts deafened their ears with awful sound. Scant minutes before, the repellent screen had interlocked its vibratory defense some fifty yards beyond the naked walls of the tower, now it hugged the round metal with paper-thin thickness. And, relentlessly, wave on wave of furious bombardment pressed it farther back, seeking out a tiny crack through which to smash and crisp all within to smoking disintegration.

"Shut off the electron bolts," snapped Er-koss. "They use up too much energy. Save all power for the screen and for polarization of the cube. Thrust everything you have into the furnaces; tear down the walls, strip yourselves even of clothes. Du-lakon, bring out your store of parabolic reflectors. Get cables and tubes and whatever else Dr. Coss may require. We have but three minutes at the uttermost."

THERE WAS no thought now of further argument. Three minutes in which to build up a transmission apparatus; three minutes in which to hold the fast-thinning screen intact.

The laboratory became a bedlam. The Amriquians hurled themselves furiously upon every ounce of movable matter

that remained. The blue-hot furnaces flared with renewed vigor. The repulsion screen of force stiffened momentarily. Then fuel vanished, and bare fingers wrenched at the metal struts, thrust them in as well. When fingers failed, they tore the purple garments from themselves and tossed them into the fiery blast.

Meanwhile Doug and Du-lakon hurried precious reflectors and a tangle of wires to the center of the room. Working like madmen, under the gesticulating supervision of Ernest Coss and the swift calm of his Amriquian counterpart, they bolted the reflectors into position, strung wires in proper series to the power controls, framed in the quiescent cube with a rim of polarization units.

"Hurry! Hurry!" Er-koss goaded them on to renewed madness. "In one minute more the screen will collapse, and all power cease."

Doug had thought he could do no more. Every muscle ached, every fiber shrieked with pain. But now he flung himself upon the still-entangled cables with superhuman strength. The steel cut his fingers, rasped his nails to the quick. But nothing mattered—nothing but the completion of their task in time.

With a cry of triumph Dr. Coss stepped back, surveyed each part with swift, birdlike glances. "It's done!" he yelled. "Inside, Du-lakon; inside, Er-koss; inside, Doug!"

But even as they darted in, with the Earth scientist on their heels, Er-koss cried out in sudden despair. "The screen is yielding. We have not enough power to twist us through the dimensions."

Through the crystal walls, four agonized pair of eyes turned to the giant control board where Wal-tor, naked as the day he was born, and almost unrecognizable under layers of impalpable soot, was tugging vainly at the master switch. A quiver ran through the ve-

hicle, a slight blur misted its exterior. That was all.

Beyond, through the frame, the heavens were a single livid slash of green. A crack widened with ominous speed in the feeble mesh of defensive force. A section of the laboratory fused suddenly, crashed to destruction in a blaze of blinding fury. High above the turmoil came the thundering shouts of the attackers. The end had come!

Wal-tor screamed unintelligible words. His once-blond face, blackened now almost beyond recognition, took on a terrible resolve. He sprang to the multi-colored panel, stabbed furious finger at the orange oblong.

At once the shimmering play of force outside collapsed. The tower was naked to its enemies!

"Great God!" shouted Doug. "He's mad! In split seconds we'll all be dead."

But Wal-tor was already catapulting toward the atomic furnace. Without a moment's hesitation, without even a gesture of farewell, he leaped in a headlong arc, straight into the maw of fierce disintegration.

"By Erdu!" exclaimed Er-koss in his deep, resonant voice. "The boy has done the only possible thing. With his own body as added fuel, with the screen cut off to conserve every minim of power, perhaps—"

Another section of the great room collapsed suddenly, taking with it to horrible death Ro-lai and three of his comrades.

"We're starting," yelled Coss madly. "We're—"

There was a blinding blue blaze. The four men crushed tightly together. Everything blurred, elongated into angular streaks. The flaming laboratory, the quick, triumphant rush of the victorious cubes of Ontho, the screaming lilt of the men of Amrique as they blasted into nothingness, fell away.

They were leaping through multi-dimensions, through incredible vistas of

time, back to the Earth from which two of them had ventured, unguessable time units before.

DOUGLAS AIKEN was the first to emerge from the wrenching agony of their return flight. Blindly his arm groped through the tangled welter of their tight-packed bodies, seeking the button that controlled the exit slide. His fingers contacted the tiny knob, pressed.

Blessed air rushed into the stifling cage, keen mountain wind and a warm, invigorating overhead sun. He staggered out, pulled the others after him.

With groans and ejaculations they rubbed gingerly their aching sides, stared around them.

"Where are we?" demanded Dulakon.

"Back on the Colorado plateau where I have my laboratory," started Dr. Coss. Then he stopped abruptly, his fingers clutching at the still-dangling pince-nez.

"Where you had your laboratory," corrected Doug grimly.

They had come to rest upon the level terrain where once before Doug had landed his little rocket two-seater in great haste.

But only charred and weatherworn ruins remained where the long frame building and the bunkhouses had been. Twisted machines, great cyclotrons, steel and glass alike were merged into an indistinguishable mass, bedded down into rust and caked mud and smoke-grimed embers. Desolation unrelieved, silent as the grave. The distant mountains glimmered in the blue haze of morning, reflecting not a sign of human life to the startled men.

"Gone!" groaned Coss, his little pointed beard twisted askew. "All the research of a lifetime—my instruments, my notes, everything."

"More than that," Doug added, eyes stinging suddenly. "Jones and Satterlee, your assistants, are buried somewhere within the wreckage."

"But who could have done this?" demanded Du-lakon with quick sympathy.

The Earth scientist balled his trembling fist. He shook it at the unknowing heavens; his voice was hoarse with rage.

"That triple-dyed scoundrel from your own universe—Iskra!" he yelled. "He burned down everything I possessed, and two good, loyal men, in revenge for our escape from his clutches."

The Amriquan scientist surveyed the holocaust with inscrutable blue eyes. "From the signs," he observed, "your laboratory was destroyed quite awhile ago."

"At least a month; perhaps more," agreed Doug. "Yet we were only part of a day on Erdu."

"The threads of time that bind the two Universes have curious kinks," Er-koss muttered. "Our-time and your-time are independent entities, each relative to its own dimensions. A week or a month here might prove but a minute on Erdu; yet a second on Erdu might in turn be incalculable centuries here on Earth."

"In which case," groaned Doug, "we are certainly too late. By this time the legions of Oothout must have inundated the Americas, and swept out the last vestige of resistance. There is nothing that we can do."

"Softly," advised Er-koss. "Nothing is impossible. Between Dr. Coss, who is bound to me by strange, indissoluble ties, and myself, perhaps something can be done. Together, we may find ourselves a forceful unit."

Du-lakon smiled at the tall, lithe psychologist to whom he was similarly bound. "And do not forget, Douglas Aiken, that the strength of two is greater than the strength of one."

"All that I know," retorted Doug bitterly, "is that we are marooned on a plateau with the nearest town a hundred miles away—without food, without implements, with only our naked hands to

match the rocket squads of the Dictator."

"We still have the cube," Er-koss pointed out. "Before I quit my laboratory on Erdu, I incorporated the simple mechanism that taps the sub-space energy. We can navigate anywhere on this globe of yours, even as on Erdu. The fundamental stratum of both universes is alike."

"Then let's get started," snapped Dr. Coss. A deep, angry flame burned in his eyes. More than all the tragedy that had befallen both worlds, the destruction of his own scientific work had touched him to the quick.

"Where to?" asked Du-lakon curiously.

"To find Iskra—and Oothout."

THE LAMINATED cube took off once more in the sparkling sunlight. Er-koss, tight-wedged in the crowded quarters, was at the controls. It rose to the Third Level, swung eastward over Pikes Peak, darted across the vast flat prairies.

Silently the four watched the unfolding vistas beneath; two with aching hearts and stinging eyes at the sight of what had once been their beloved land; two with the eager curiosity of alien eyes.

America was a shambles. Denver no longer existed, St. Louis was level with the muddy waters of the Mississippi, Cleveland was a thing of horror and skeleton struts, Pittsburgh sprayed forlorn smoke from battered chimneys. Great craters pitted the once-smiling fields, farmhouses twisted in charred agony. Over all was silence.

"But where are your people?" demanded Er-koss.

"Dead, or dragged off as slaves to Oothout," said Doug tonelessly. "It's hard to say which is worse."

They encountered their first sign of the conquerors as the Alleghenies tossed beneath them. A rocket squadron, roaring along on the Third Level, blasting

its way westward on cushions of stabbing flame. They came out of a cloud-bank like hurtling thunderbolts, their waspish sides flaunting the black and yellow convolutions of Oothout's insignia.

"Look out!" yelled Doug.

Barely had the words torn from his lips when the upper atmosphere was filled with slender torpedoes, powered by tiny rockets and radio-controlled from the cockpits of the roaring battle fleet.

On they came, sinister little stingers, hundreds of them, whose barest touch meant detonation and exploding ruin. But Er-koss merely smiled as his long, delicately veined hands moved over the controls.

The cube swerved, shot perpendicularly into the stratosphere like a meteor in reverse. Behind, the torpedoes lifted in response, while ship after ship pointed nose upward in pursuit.

But fast as they were, the shining cube was faster. Up to the hundred-thousand-foot level it catapulted, turned, and fled with dizzying speed toward the east.

Dr. Coss gulped. His eyes were bright with excitement. "By the great Horn Spoon," he said, "you were going almost a thousand miles an hour then."

Er-koss nodded, inscrutably grave. "Sub-space provides an unlimited reservoir of power. Our speed is limited only by the resistance of the atmosphere."

Doug stared down at the slanting lines of ships, already receding in the distance. "They'll radio the alarm to all the world," he observed tensely. "There'll be thousands of battle fleets on the lookout for us now."

"If only," groaned Du-lakon, "there had been time to install some offensive weapons of our own."

But Er-koss only said: "Give me a laboratory, and I shall install them."

"They are all destroyed, or in enemy hands," Dr. Coss answered dully.

"Hold on!" Doug's voice crackled

with excitement. "It is barely possible there is one still untouched."

"Where?" chorused the others.

"In the Great Smokies, close to Clingman's Dome. I remember in the last cabinet session at Washington that Burchell, the minister of defense, said something about it. It's a secret underground stronghold used to store the Federation's gold supply. Concrete caverns, hundreds of feet beneath the surface, armed with the latest weapons, stored with food and water, prepared against indefinite siege. The secret of its existence has been so closely guarded that it is possible Oothout hasn't discovered it as yet."

"Let us go, *mes enfants*," Coss whooped.

THE GREAT SMOKIES retained their immemorial solitude. Majestic mountains, wooded to the summits, flaming now with the last blossoms of mighty rhododendrons. In the distance was the sweep of the Blue Ridge, angling northward toward the ruins of Washington. But here all seemed peace and quiet.

Warily the cube dropped out of the stratosphere, plummeted toward the smooth round bald of Clingman's Dome. It was deserted. Doug's eyes narrowed on the surrounding terrain. Nothing disturbed the even tangle of pines and hemlocks and the omnipresent flowering rhododendrons. They stretched in smooth green and white down the mighty slopes, tumbled interminably in all directions.

"Damn!" he exploded. "Naturally there would be no outer sign. We'll never be able to find out."

Dr. Coss screwed up his bright little eyes. "There is gold down there; there are hollow caverns filled with electrical apparatus. If we could produce an electric echo by throwing short waves at them—"

Er-koss turned his high, calm forehead. "You are right, my friend. We



have no short waves, but I can manage something infinitely better."

"What?"

"The warps produced by our intake of sub-space vibrations. Electric flows create magnetic fields which twist in the sub-stratum. Their patterns shift the intensity of our power by minute intervals. Now if we can plot them and narrow the source down—"

For an hour they cruised slowly and painstakingly around the shaggy mountain. Du-lakon steered, while Er-koss watched the infinitesimal variations in power as they shifted from position to position. Then, finally, he nodded. His long finger pointed downward to a tiny valley, almost hidden in the obliterating jungle of trees. "It is down there," he said simply.

An unbearable tension held them tight as they drifted slowly down. The sea of vegetation seemed unbroken. But almost as they touched the topmost branches, Doug cried out, "I see a clearing!"

It had been skillfully protected from vagrant spying: The sweeping trees formed an arch which opened only as they dropped within. The brush had been felled, and a field no bigger than an acre disclosed itself to view.

"If only Oothout's men haven't found it yet," Doug whispered. There was a drying sensation in his throat as the cube settled noiselessly on the grassy floor. Du-lakon fumbled at the panel. It slid open. Doug was the first outside.

But even as he stepped upon the green, the earth around him seemed to open up. A quadrangular gulf yawned as if by magic; there was a rushing, whirring sound. Hordes of men, armed with guns, the sun dazzling from the steel of their helmets, sprang literally up from the ground, ringed them in with hurtling menace.

Doug darted back with a cry of warning toward the cube. Coss yelled, "Quick, jump in!" Du-lakon tugged

frantically at the controls.

"We'll blow the first one of you mugs that moves to kingdom come!" rasped a voice. Guns lifted threateningly—a hundred grim orifices, that on the pressure of a finger would belch armor-piercing explosive bullets.

Doug leaned suddenly against the side of the cube, and started to laugh.

"What's the joke, guy?" growled the same voice suspiciously. "You'd better be saying your prayers instead of cackling like that. There ain't anyone finding this place that stays alive to talk about it."

"It's all right," Doug gasped. "Come out, the rest of you. We're among friends."

THE SOLDIERS crowded down upon him. They were a hard-bitten lot, grim of face and grimmer of eye. They had been through Hell—it was visible in their hollow cheeks, in the taut wrinkles around their eyes—and hate burned in the glances they thrust toward the cube and its strange occupants.

The sergeant who had spoken before jerked forward, his gun trained on Doug. "Where do yuh get that stuff—friends?" he rasped. "We ain't no friends to devils like those two inside. We got our bellyfuls of a guy just like them that's thrown in with Oothout, blast him! And we've seen that damned cube before, too. As for you and that funny little guy with the apology for a beard—"

"You've got us all wrong, soldier," Doug broke in hurriedly, as Dr. Coss let out an indignant yell at this unflattering description of himself. "That little guy is Dr. Ernest Coss; I'm Douglas Aiken—both of us Americans. We've brought back help from another universe to combat Iskra and Oothout both."

The big sergeant glared at him. "Yeh!" he snorted. "And I'd be President Winslow if I wasn't Jim Regan. So what?"

"I'm telling you the truth," Doug insisted. "Look! Is President Winslow still alive?"

The soldier stared at him. "He's below, if you really must know," he said finally.

"Thank God!" breathed the young man. "I thought he was dead. Take us to him at once. We have important news for him."

"O. K. But maybe you'll wish you never saw him, if you're trying to pull a fast one. Mac, take charge of a squad, and hustle this devilish contraption underground and out of sight, while I escort these bozos to the Chief."

A tall, gangling, carrot-headed individual saluted, said: "O. K., sarge!" A platoon of husky khaki-clad men closed in on them. Regan bent over, tugged at something.

Instantly the pit of Doug's stomach collided with his throat. The ground seemed to give way with breath-taking suddenness. They were falling swiftly into the bowels of the Earth, past tier on concrete tier, down into a circular pit.

Then the platform came to a halt, and they stepped off. They were in a smooth-walled chamber, with concrete passageways radiating in all directions. The place was a hive of activity. Overhead arcs lit up a ceaseless scurry of grim-visaged men, working, burrowing new tunnels, setting huge cannon into movable emplacements, staggering under sacks of munitions, of food and implements.

"This way, you guys!" called Regan. A dozen men hemmed them in with wary guns as they stepped on board a moving conveyor belt, were whizzed down a passageway. About half a mile of swift flight, then they braked to a stop in front of a barred door. A sentry lounged outside, leaning on the long barrel of his rifle.

"Tell President Winslow we caught some spies in Iskra's cube," snapped Re-

gan, "and we brought them down for his final say-so."

"You blankety-blank fool!" exploded Coss wrathfully. "No wonder Oothout wiped us out, with thick-headed numskulls like yourself to defend the Americas." He swung on the startled sentry. "You tell the President that Dr. Ernest Coss and Douglas Aiken are in a hurry to see him, do you hear?"

The soldier grinned, ducked inside. The door slammed. "You little squirt!" threatened Regan. "I'll knock that monocle—"

THE DOOR flung open. There was a pound of hastening feet; a cry of voices.

"Aiken! Dr. Coss! Good Lord! I thought you had been killed a month ago. How in Heaven's name did you get here?"

President Winslow's eyes were glowing with a strange fever. His gaunt face was lined and haggard with suffering. His shoulders sagged under invisible burdens.

Behind him hurried Donald Burchell, minister of defense; Hale, secretary of communications; and a short, stocky man in uniform whom Doug recognized as General Simpson, commander of the East.

"We've been on an incredible journey, Mr. President," explained Doug, as they shook hands. "Thanks to Dr. Coss, we made it all right. And we've brought back help. Meet Er-koss, scientist of Erdu, and Du-lakon, to whom I am of closer kin than if I had a brother."

"They look to me more like brothers to that damned Iskra," said General Simpson bluntly, viewing their purple garments with disfavor.

"It's a long story," Doug grinned, "and time is short. What is the situation on Earth, Mr. President?"

Winslow's eyes seemed to shrink deeper into their sockets. He made a gesture of despair. "It couldn't be

worse. The few men that you find in this underground fortress are all that are left free and independent on the face of the Earth. Weakened by internal dissensions, torn apart by internecine madness, the Americas could offer but a feeble resistance to Oothout. Here and there, isolated detachments fought gallantly to the last man, but they could hold up this irresistible advance but slightly. Worse still, a strange being appeared suddenly, piloting a cube of terrific speed and equipped with weapons of destruction hitherto unknown to us. He joined forces with Oothout, and smashed down our strongest defenses with frightful green rays. After that, it was all over."

"It was lucky," broke in Burchell, "that the enemy doesn't know of this hide-out. I managed to get General Simpson and a single regiment to fly us down here under cover of night."

"And the other members of the cabinet?" Doug asked softly.

A spasm of pain passed over Winslow's gaunt features. "Dead!" Then, with a wan smile: "Now tell us about yourselves—and these two strangers."

A half hour later Er-koss, Dr. Coss and Du-lakon were installed in an underground laboratory. Again the interlacement of passages swarmed with activity; but this time it was purposeful, immediate in its furious urgency. Every man, every resource, was at the command of the calm, white-bearded scientist from Amrique.

"I'm afraid it's too late." Winslow shook his head sadly. "Nothing can stop Oothout now. He's too strongly intrenched."

Doug was under no illusions. Already, in the short time they had been in this last stronghold of the Americas, he had seen man after man stagger suddenly and collapse, stricken by a mysterious ailment against which the doctors were helpless. The defeat of the Amriquiens on their unimaginably distant world was

being reproduced with deadly effect among these lesser counterparts on Earth. But he forced a cheerfulness he did not feel.

"Er-koss is a superscientist, such as the universes have never seen," he said brightly. "And he has the assistance of Dr. Coss, himself no slouch. But tell me, where does Oothout keep his headquarters?"

"In Washington—at the White House. He came over from Europe to direct the mopping-up operations and gain the final glory."

"We'll get to him," declared the psychologist positively. "Leave it to—"

THERE WAS a commotion at the door. Then it slammed inward with a violent crash. Sergeant Regan catapulted into the room, his broad red face beaded with perspiration, his eyes popping with excitement. He forgot even to salute.

"Mr. President," he shouted hoarsely, "the enemy has discovered us. Our periscopes show thousands of planes plunging toward our hiding place. The whole damn mountains are full of them."

Even as the words tumbled from his lips, there was a series of tremendous detonations. The ground underfoot rocked and rumbled as though in the throes of a mighty earthquake.

General Simpson moved forward with surprising speed for a man of his bulk. "Snap out of it, sergeant," he said coldly. "How did they find us?"

"I think I can tell you," Doug interposed bitterly. "We had been intercepted on the way, but managed to escape. However, they evidently radioed warning of our coming, and a scout plane must have seen us descend into this valley."

Hale threw up his hands. "This is the end, I suppose. We've got barely two hundred men left; the rest are hospitalized. They're dropping half-ton

detonite bombs. They'll blast us out in no time."

"Not without a fight, they won't," growled Simpson. "Come with me, Regan. We'll round up every damn soldier here, sick or not, to man the guns."

Regan saluted sharply. His shoulders straightened. "Yes, sir!" he said. They hurried out on the run.

"Good man, Simpson," observed President Winslow quietly. "He'll do everything a human being can do. But the odds are too great. Listen to that!"

Overhead, it seemed as if the world was coming to an end. Blast on blast of dreadful sound smashed through to them, merged into a single continuous roar. The ground beneath lifted and heaved like a storm at sea. The three men clung to the walls for support. Speech became impossible. Huge cracks showed in the concrete walls; chunks of cement loosened and fell with a thundering crash.

Donald Burchell shouted something, but the heavy concussion blasted the words from his mouth. He went out the door, pale, purposeful. Hale, with a fixed grin around his lips, followed him. Doug knew without being told where they were going. They were joining the few embattled troops in the upper reaches, to fight to the very last.

He started to follow; stopped. He had forgotten. An exclamation burst from his throat, unheard in the frightful racket. He whirled, staggered toward the immobile President, caught him by the arm.

"To the laboratory!" he screamed. "If Er-koss hasn't finished—"

Whether Winslow heard him he was never to know. The President's features were fixed in an unalterable mold of despair. But he went.

The conveyors were useless; the mechanism had been jarred loose by the detonations. But somehow they staggered through the maze of passageways, ducking falling concrete and

rocks, supporting each other against the swaying walls, groping through stretches where the light wires had broken and plunged the winding corridors into pitchy darkness.

THEN, FINALLY, they pushed into the laboratory. Here they found a blessed release from the smashing concussions of sound. Faintly, far off, came the muted roar of the bombs as they poured into the devoted valley.

"We're on the other side of Clingman's Dome at this point," said Winslow quietly.

The vast chamber was filled with driving power. Huge arcs glowered and sputtered. Blue flames shimmered through the room. Machines throbbed with incessant beat. Soldiers, like fantastic gnomes in the weird light, heaved with straining muscles at heavy apparatus.

In the center rested the cube, rocking gently on its base as quake after quake drummed through the ground. Er-koss was inside, his fingers moving with effortless speed over delicate bits of wire, of tiny crystal segments that he was fitting into a complicated pattern.

Outside, Dr. Coss and Du-lakon worked with a certain intense fury. They soldered equipment together, bent tiny magnets into angular zigzags, placed the small but immensely potent Harkness tubes in double series on panels. As fast as they had finished with a bit of apparatus, they passed it inside to Er-koss, who deftly set it into the growing pattern that made a maze on the crystal walls of the cube.

"We've almost completed our offensive equipment," Du-lakon called cheerily at the sight of Doug and the President. "In another hour at the outside, we'll have set up a defensive screen as well."

"You might as well ask for eternity," grimaced Doug.

Dr. Coss looked up quickly from his



*Du-lakon's welcoming shout of "Er-koss!" stayed the bullet.*

task. "Eh, what do you mean, my boy?" he demanded.

"I mean that Oothout's caught up with us. Don't you hear the bombardment?"

The scientist straightened his weary back, startled. "So I do," he exclaimed. "But we've been so infernally busy we thought it was only an earthquake of sorts."

"I think"—Winslow turned his head in a frozen gesture—"that they've broken through already."

The weaving noise had cut loose suddenly. The mountains seemed to tumble and fall upon the underground shelter. Heavy machines, lining the walls, toppled from their fixed positions with thunderous crash. A soldier screamed in sharp agony; then they heard him no more. Far off, like beating surf, came heavy gunfire, punctuated by mounting yells of triumph.

A wave of grimy, powder-blackened men erupted into the laboratory. Behind them came more waves, choking up the narrow passageway. The gunfire increased in strength. The explosions sounded dangerously near.

General Simpson, one arm dangling at the side, his once-neat uniform a bloody mess, hastened in. He saluted the President with his one good arm.

"There's still a chance for you to get away, Mr. President," he gasped. "We can hold them off for another ten minutes or so. They're in control of the central chamber, and of all the passageways but this one. If that infernal cube that Coss made can take off under its own power, the way is still open through the auxiliary exit near Chimney Rocks."

Er-koss tightened a last strut. "Our power is intact," he said.

"Then for God's sake get in!" Doug implored. "Take Coss and Du-lakon with you. I'll help the General—"

THE SOLDIERS were kneeling across the entrance to the chamber. Their

guns fired with a steady rhythm into the smoking blackness. Explosive bullets sprayed past them, smashed into the walls, crashed still-standing machinery to the ground. Men jerked suddenly forward, fell on their faces. Shrieks of pain came from the wounded and dying. The place was fast becoming a shambles.

The shouting was coming nearer. The hail of vicious pellets increased. The ranks of the defenders were thinning.

"Hurry!" screamed Simpson above the tumult. "We can't hold them off much longer."

Doug started for the President. In so doing, he cut close to the open slide of the cube. "You've got to go," he commenced—and never finished.

Dr. Coss nodded to Du-lakon. They flung forward simultaneously. Together they crashed into the young man, shoved.

"Hey! What the—" cried the startled young psychologist. He lost his balance, fell forward into the cube. Er-koss, gravely calm, slid the mechanism shut, pressed controls.

Outside, the Earth scientist danced with impish glee, shouted half-audible words. "There's only room for two in the cube. Er-koss for science—you to fight. We'll stay with the President."

Already Du-lakon had caught up a rifle from the limp fingers of a sprawled soldier, was hurrying to take his place in the fast-thinning line of khaki.

"Let me out!" raged Doug, stumbling to his feet. But it was too late.

The vault of the laboratory seemed to open. The cube shot upward with accelerating speed; up through a yawning cylinder of utter blackness, out from the precipitous steep of a jagged mountain, catapulted like a bullet into the blinding light of day.

Doug swore vehemently to relieve his feelings. "The little bantam!" he exclaimed. "Trying to save my life at the expense of his own. Doesn't he know that if he dies you go under as



well; that if Du-lakon succumbs, I'm no good for anything, either?"

"Neither of them will die," said Er-koss quietly.

"What do you mean?"

The man of Erdu smiled. "I took precautions. The entrance to the laboratory is mined. At the proper moment Dr. Coss will set off the charge. Not only will the tunnel be effectually sealed, but a goodly number of Oothout's men will be trapped under the collapsing walls. There is ample food for those within to last for several weeks. By that time—"

"By that time," Doug broke in grimly, "we'll either put Oothout out of business—or nothing much will ever matter again. Head northeast, across the mountain range toward the coastal plain beyond."

THERE WAS NO pursuit. The rocket-squadron had not seen them emerge, had taken no note of their catapulting flight into the stratosphere. They whipped smoothly through the rarefied air, Washington their goal.

"You know, of course, that William Oothout must have set up what he considers impregnable defenses," Doug observed casually.

Er-koss nodded gravely. "In nature," he said, "there are neither impregnable defenses nor irresistible weapons of attack. The terms are purely relative."

The Shenandoah Valley made a check-board far beneath; then the Piedmont of Virginia yielded to broad tidal rivers and still-smiling fields of corn and soya bean. Washington, the capital of the Americas, glittered to the east. It was deceptively silent. There was no sign of untoward activity. The white dome of the Capitol, the golden ornateness of the Congressional Library, the granite shaft of the Monument, and the sprawling miles of huge governmental structures, seemed naked to attack from air and from land.

"I don't like that," muttered Doug. "Oothout's nobody's fool."

"Neither is Iskra," the Amriquiian scientist added. "Here he comes now."

Even as he spoke, a series of shining specks rose swiftly from the field at Arlington, spread fanwise to envelop the onrushing cube.

Doug stared and gasped. "Good Lord! Those aren't rocket-planes; those are Erduan cubes. Almost a hundred of them. Is it possible—"

Not a muscle of Er-koss' countenance changed. "I had expected this," he said. "Iskra has received reinforcements from Ooroopah on hearing of our escape."

"But what can we do?" groaned the young man. "You can't fight a hundred cubes, whose equipment is better than your own."

"Worse still," admitted the white-bearded scientist, "I haven't even power enough to utilize my own offense. No Earthly machines could generate sufficient power for that."

"Yet you took off," gulped Doug. "For Pete's sake, at least try to escape."

"That," said Er-koss, "is now impossible. Their enveloping movement is complete."

It was true. Er-koss had not deviated from his course by a hairbreadth on sighting the enemy. The cube had driven straight along; straight into the farflung net that had been cast for them.

"Have you gone crazy?" gritted the Earthman. "Do you intend dying without a fight?" His hand lashed out. "Get away from the controls; I'll handle this."

But the Amriquiian, for all his years and white hair, was stronger than he seemed. He thrust the young man's hand away as easily as if it were a brushing moth. "Wait!" he advised.

The war cubes of Ooroopah closed in with a rush upon their prey. Long lances of green flame spurted from their sides. The tortured atmosphere blazed with disintegration. Doug flung his arm

over his eyes as though to ward off the screaming death that reached out for them.

The cube shuddered under the impact, tossed violently from side to side. A green hell wrapped them round, spun them on their axis, rocked them in a fury of seething destruction that seemed to rip the crystalline structure from end to end. The filigree of wires and struts that Er-koss had traced upon the inside of the vehicle flared a curious red under the terrific bombardment.

Blinded, stunned, Doug gasped for breath, awaiting the end with a strange, numbed calm. No thing of crystal and metal, no being of flesh and blood, could last more than a second under that fiery test. Inevitably the rays of Ooroo pah must penetrate; and then—

In a daze he saw the wavering figure of Er-koss still clinging to the controls, still trying to hold the plunging cube along its given course. Suspicion stabbed his dulled brain. Had the Am-riqui-an turned traitor; was he in fact as mighty a scientist as Du-lakon had pretended? This did not look like it—

The universe seemed to collapse. The wire filigree blazed suddenly into an insupportable cherry red. Er-koss fumbled with his knobs. The cube stopped short its headlong flight and dropped like a plummet toward the ground. Through the fiery bath of green Doug saw the city rush up to meet them; saw the chaste white pillars of the White House grow to overwhelming size beneath; saw the cubes of Ooroo pah dive after them like vengeful demons.

Even as he passed out of consciousness, a single thought floated in his brain. Why hadn't they crashed?

DOUGLAS AIKEN awoke to find Er-koss bending anxiously over him. A cut on the scientist's forehead was still bleeding, and his beard was slightly dabbled with blood.

Relief showed in his eyes. "By Erdu,

I was afraid you had succumbed to the green disintegration," he exclaimed. "For the moment I thought I had miscalculated."

Doug struggled to his feet. His head throbbed; he could feel the lump at the base of his skull. "Eh, what's that?" he muttered vaguely. "Where are we?"

"Inside Washington," the scientist said calmly. "Look about you."

Doug blinked. Their cube nestled on the White House lawn. Around it, in a circle, facing it with wary triumph, were the cubes of Ooroo pah. Within each unit sat two warriors, in green uniforms faced with yellow, their lean, dark fingers poised over convex mirrors that blazed the terrible green rays on the slightest pressure.

Overhead, curtaining the city like an arching rainbow, shimmered and danced an electric glow. Impalpable it was, like the veriest gossamer, yet, as Doug's senses cleared, he recognized it as a mesh of interwoven vibrations similar to that which had protected the tower of Am-riquo from the first onslaughts of Ontho's hordes.

"So that was what cradled our fall," he cried.

Er-koss nodded. "Ontho must have discovered the secret from our subjugated laboratories, and installed it here for the protection of his lesser counterpart. I had not nearly enough power to crash through by main force."

"Then . . . then you deliberately engineered our capture?"

Er-koss smiled and said nothing. He was watching with inscrutable eyes the cubes that ringed them in.

"But why weren't we destroyed by the green rays—and what do you expect to gain except death by your tactics?" demanded Doug, now thoroughly aroused.

"Ssh!" whispered the scientist of Erdu. "Here is Iskra."

A cube floated down to a feathery landing within the ring. A dark, lean

figure stepped out. Malicious triumph wreathed his hawklike countenance. He strode toward the quiescent cube. His voice registered on the sono-visor.

"Amrique evolved a legend around the mighty name of Er-koss," he jeered. "Yet he blundered like any fool into our trap."

The scientist said nothing; a warning pressure on Doug's arm cut off the hot retort that had sprung to his lips.

Iskra's face darkened. "Open your cube, before we blast it open, and spatter the two of you into non-existence in the process."

"Haven't you tried that already without success?" queried Er-koss in equable tones.

"You have a screen of some sort," Iskra admitted sullenly. "But it can't last forever. Your power must soon give way, and certainly your oxygen supply will become exhausted. You had better come out peaceably."

"I make it a point never to surrender to a subordinate," the scientist taunted him. "We are quite comfortable within, nor can all your rays dislodge us. Unfortunately, we have no weapons of offense—otherwise you would not be so safely insolent."

ISKRA TOOK a hasty step backward. In the surrounding cubes fingers moved a trifle closer to the convex mirrors. His shifting eyes had raked every nook and cranny of the beleaguered cube, and saw no evidence of any weapon either of Amrique or of Earth.

"You'll pay for your own insolence," he snarled. "I, Iskra, am subordinate to no one."

Er-koss chuckled mildly. "If Ontho on Erdu heard that, or even William Oothout within those very walls, they might dispute that assertion."

"I do, indeed," thundered a voice that seemed to emanate from the walls of the White House itself. "Bring these prisoners within, Iskra, and let me see them.

Iskra's face turned a ghastly gray. He turned blindly toward the blank porticoes. "I did not mean anything—" he began.

"Spare me your apologies," rasped the voice. "Bring them in."

"But I cannot. They are sealed within their cube. They have a screen of peculiar force which makes it impossible for our rays to break through."

"Are they armed?"

"They have no weapon at all," Iskra averred positively.

"Then bring them in, cube and all."

Hope flared in Doug's breast. He had his automatic in his pocket. If only at the right moment Er-koss would have sense enough to thrust open the slide, a well-placed bullet might at least end Oothout's career of absolutism. Their own lives were forfeit in any event.

Iskra bowed to the unseen voice. He rapped out an order. A score of Ooroo-pan guards approached, lifted the cube and its human freight upon brawny shoulders, trundled them through the gleaming white columns, through the broad double doors that led into the majestic anteroom of what had been for many centuries the gracious abode of democratic presidents.

The guards deposited them with an ungentle crash upon the floor and withdrew. A startled cry broke from Doug. At the farther end of the blue-draped chamber two men sat. On the lower step of a raised dais, in a cramped armchair that barely held his billowing bulk, was William Oothout. Doug recognized him at once. He had seen his bloated picture only too often. A veritable man-mountain, with black, greasy hair that slicked back from his forehead, and a greasy brown complexion that just now seemed strangely sallow. His little dark eyes were curiously unhappy, in spite of his conquest of all Earth.

On the upper platform of the dais, however, sat another being. He was lean and cadaverous; his black hair

matched the black flame of his eyes. Authority was stamped upon his saturnine features

"Ontho!" gasped Doug.

"I thought he might be here," murmured Er-koss. "I knew he couldn't resist the chance to seize ultimate power over both universes. He'll utilize Oothout, his Earthian counterpart, as a mere tool."

Doug's jaw hardened. He whispered quickly. "Open the slide, Er-koss. I have a gun—"

Ontho, on his dais, smiled sardonically. "Open the slide, Er-koss, even as your young Earth friend suggests, and you are both dead men—a little sooner." His lean fingers, gripping the flat arm of his chair, had depressed slightly.

A SOFT GREEN flame flickered into being around the cube in which they were imprisoned; once more the interlacing wires that patterned the inner walls glowed with a cherry red.

Er-koss stared absently. "Ontho is right," he said without a tremor. "We are in his power. Once the slide opens, the green disintegration will blast us into nothingness."

Ontho chuckled. "Er-koss, mighty scientist of Amrique, realizes that at last he has met his master. Look at your cube. The green ray has already penetrated. See how that spray of little wires reacts to its influence. Your defensive screen is slowly but surely collapsing. It will be of infinite merriment to me to watch your suffocating antics under the compulsion of the ray; to see you finally spatter into a mere layer of fine dust."

Already Doug could feel tight bands compress about his skull, and a strange, unpleasant prickling of his skin. The green glow seemed to grow in intensity. The air inside the cube was suddenly close, yet his laboring lungs gasped at its thinness. It was becoming hot. The network of wire took on a deeper red.

Everything began to haze.

As from a great distance he heard Oothout's pleading voice, saw him squirm uncomfortably in the narrow confines of his chair. "Now look here, Ontho! After all, I'm supposed to rule this Earth. You have your own Erdu to govern. That was our original bargain, the bargain that Iskra, your emissary, made with me. Yet you try deliberately to humiliate me. I don't think—"

"You are a fool," Ontho interrupted arrogantly. "Do you think one universe is sufficient to satisfy me, now that Amrique, my ancient enemy, has succumbed? From henceforth I am lord of all the universes. Be satisfied with what crumbs I deign to grant you. It is enough that I permit you to remain as my lieutenant on Earth, subject to my control. Were it not for Iskra's silly belief that your petty existence is somehow wrapped up with my own, I would not tolerate your stupidity even for a moment."

Oothout, once Dictator and sole master of a billion people, cowered in his chair and said nothing. Iskra beamed, happy that his former slip seemed to have been forgotten.

Doug felt as though each gasp was his last. There remained but a little air within the confines of the cube, and that was insupportably foul. The prickling all over his body increased and become a searing agony. His lips were parched, his throat was dry, and the lining of his stomach was etched with fire.

In a semidaze his fingers clutched in his pocket for the gun. "For God's sake, Er-koss!" he cried, "open the slide. At least let us rather go down fighting like men than die here like rats in a trap."

Ontho directed his gaze back upon his victim. "He is right, Er-koss," he approved sarcastically. "That way you gain a quick death; this way, you suffer

interminably. But I suppose you Amriquians prefer the cowards' way."

But Er-koss paid no heed either to the pleas of his comrade or to the gibes of his captor. His stare was blankly unfocused. It fell upon the wire screen he had evolved, where the reddish glow was slowly fading, it passed beyond to the two Dictators and embraced Iskra and the watchful guards, it seemed to penetrate even the walls themselves and to lose itself in outer space.

No longer was his robe or mien immaculate. White hair and blood-specked beard were limp with perspiration; an inner agony twisted his dignified features.

DOUG COULD stand it no longer. Whipping the automatic from his pocket, he sprang for the controls. "Damn you, Er-koss!" he cried savagely. "I think Ontho is right. One bullet is all I need—"

Fast as he was, the scientist was faster. His body hurled forward to block the rush of the maddened young man. His eyes, once glued to the walls of the cube, now held a curious light.

"Wait just another moment, my young Earth friend," he cried, shielding the controls. "Trust me that long."

Doug stiffened. Once more Er-koss seemed the superbeing of old. "If you have something up your sleeve—" he commenced eagerly.

But the Amriquian had already swung toward the Dictators on their dais. "Listen to me, Ontho, and that pallid simulacrum of yours, Oothout," he thundered. "Until a moment ago the game was in your hands; now it has shifted into mine."

"Bah!" grunted the Lord of Ooroo-pah incredulously. "You are my helpless prisoner, yet you think to scare me with idle talk."

"You know I am not prone to idle talk," Er-koss said sternly. Somehow, in spite of intolerable agony, in spite of

ever-growing pressure from the filtering green disintegration, the scientist had recovered his former majestic bearing. Doug listened, wondering, noting only vaguely that the wire network no longer glowed under the rays.

"I give you exactly one minute of Earth time to come to my terms," continued the scientist. "They are: down your weapons and those of your satellite on Earth; submit to the destruction of all your war cubes and the releasement of your respective peoples from your rule; rebuild with your hoarded wealth the civilizations you have destroyed—and consent to your perpetual exile on some sterile world I shall nominate."

Ontho thrust back his head and laughed loud and long. Iskra followed suit; so did the guards who stood in solid ranks around the great blue chamber. Only William Oothout did not laugh. A frightened look crept into his eyes. He licked his lips nervously.

"And if I don't, O maker of terms?" roared Ontho.

"In half a minute," retorted Er-koss imperturbably, "I shall destroy you as well as every living being within this structure."

A sudden silence fell upon them. The raucous laughter of the guards died abruptly; they looked at each other with uneasy glances. After all, the reputation of Er-koss as a superscientist had been universal in all Erdu. Who knew what weapon he might have evolved? Iskra, softly and without haste, began to move toward the door.

"Perhaps we'd better come to some agreement with him," said Oothout nervously. Damn these interlopers from another universe! Already they were making him into a lackey, a matter for sport. His pride could not endure it. Let them fight it out between them, destroy each other in their madness—but let him not be around when it happened. "Of course," he hurried on placatingly, "we couldn't consider the terms he has

laid down. They are preposterous."

Ontho arose from his chair. His glance fell like a chilling blight on those around him. Even Iskra stopped his stealthy withdrawal and pretended non-chalance.

"I am no longer amused," he said with cold emphasis. "It is time to put a stop to such insolent chatter." His hand darted down to the arm of his chair, pressed viciously upon the controls.

The green glow spurted across the room, impacted with incredible force upon the cube. There was an ominous crackling sound; a sizzle of molten quartz. Doug felt unbearable weights upon his chest, a frightful heat wrapped him round in a fiery blanket. With a choked cry he raised his lead-weighted arm and fired his automatic at the saturnine face that already hazed through the distorted laminations.

Er-koss staggered, fell half against the panel controls. With a last desperate effort he groped blindly for a small aluminum sphere, twisted it with dying strength. Then he collapsed on the floor of the superheated cube.

Suddenly Doug found himself alone in rushing darkness. The walls of the polarized structure, seemed to expand with the speed of thought. The great blue room with all its crowded men vanished into the blackness of space. Somehow, Doug caught a glimpse of Ontho; his mouth curiously open, his eyes filled with unutterable fear. Then he, too, was swallowed up in the swift engulfment of night. In all the universe but one thing appeared to exist: a bright-red tracery of patterned wires etched against the curtained void of space and time.

The gun dropped from his nerveless fingers, clattered somewhere with a strangely hollow sound. The unbearable weights lifted; the stifling heat gave way to the cold of interstellar space. A terrible silence pervaded where before there had been sound and form and motion. Terror stiffened his muscles; the cold

chilled his blood.

"Er-koss!" he shouted. "Where are you?"

Someone groaned close by. Doug flung himself down, pawed frantically around for the unseen body of the man from Erdu. The darkness was profound; the scarlet tracery had faded into the all-embracing black.

The next instant the darkness split open with an indescribable sound. There was a roar of a million Niagaras; a smashing, thundering noise that blotted out non-space and non-time with screaming velocity. A thousand suns careened through the void, burst into a wild rebirth. Then everything exploded, and Doug, holding tight to the limp form of Er-koss, knew no more.

DOUGLAS AIKEN weltered up out of infinite darkness into light and sound and motion. Someone was calling his name, someone whose voice was strangely familiar. He opened his eyes, stared dazedly around.

Dr. Ernest Coss whooped with delight. His little pointed beard positively danced. "Boy, but you gave us a sear for a while! If it hadn't been for Du-lakon's first aid I think both of you would have been goners."

Doug sat up. There was something startlingly wrong about the whole picture. Where was he? What had happened? What were Coss and Du-lakon doing here? Wasn't that General Simpson standing to one side, his left arm dangling queerly, his head bandaged? And those grim, bloody soldiers in khaki who swarmed in all directions—hadn't he seen them before? And in Heaven's name where was the cube, the White House in which they had been imprisoned, the City of Washington itself?

He jerked unsteadily to his feet just as Er-koss lifted himself slowly from the ground. They were standing on a level plain that Doug did not remember. It was strangely artificial. To the utter-



most horizon it stretched, smooth and straight as a ballroom floor—of a hard, fused, siliceous substance—without a building, without a tree, without a tiny mound, without even a blade of grass to disturb its dreadful monotony.

Nowhere was there a sign of Ooroo-pan or European, of Ontho or Iskra or Oothout; no vestige of baleful war cube or of rocket plane that held the symbols of the Dictator. Only a few battered American speedsters, resting quietly on the hard-packed ground.

Doug tried to rally his aching senses. "I don't understand," he said haltingly. "What happened?"

"We don't know either," responded the Earth scientist jovially. "All that we know is that after we sealed ourselves into the laboratory after your flight, the bombardment continued with increasing violence for almost an hour. Then suddenly it stopped. Fearing a trap we rushed to our penetrascopes. In them we saw an incredible sight. The whole of the attacking squadrons had taken to flight; even as we watched, they winged fast and furiously toward the East, high out over the Atlantic, and vanished in the general direction of Europe. They looked as though all the devils in Hell were on their tail."

ER-KOSS, holding tight for support to the slim shoulder of Du-lakon, hobbled over. The blood dripped unheaded from the gash on his skull; a little smile twisted his firm, full mouth.

"I can explain exactly what happened," he said quietly. "Both men and city still exist—if you can call their present state a real existence. I simply withdrew from them the attributes of time and space, so that they have neither dimensional extension nor the forward life that only the time flow can give. They are here—eternal, indestructible—but they are no part of this universe, nor of any other universe. Time has ceased for them, and so has motion.

Just as they were when they were wrapped away, so shall they remain even after the universes run down and cease to be."

Doug shook his head violently to clear away the cobwebs. A memory of that glowing red tracery of wires came to him. "But how did you manage it?" he exclaimed.

"The principle was not difficult. I faced the sides of the cube with a network of crystals of different compositions, of wires that made them into a certain patterned whole. Form and vectoral direction," he continued earnestly, "are only beginning to be studied. We are barely on the verge of a new science. It has been overlooked heretofore that form is as important as chemical and physical composition. Crystal structures, for example, are possessed of peculiar properties only because of the internal relation of their molecules. Polarization bases its effects completely upon the shift in directional planes. The very fundamentals of the atom, the building stone of the universes, are dependent on the orbits and respective energy states of its constituent electrons.

"It was the particular pattern I employed, as much as the elements used, that broke down the temporal and spatial elements of all matter within a radius of fifteen miles." He smiled queerly. "The radius depends wholly upon the power employed. Given sufficient in-forming energy, I could cause the Earth—the universe itself—to vanish into the limbo of forgotten things."

A curious shudder stirred over the listeners. If such a mighty weapon ever fell into the hands of a power-mad individual such as Ontho had been, or Oothout—

Er-koss read their thoughts. "You need not fear, my friends," he said with grave emphasis. "The secret dies with me."

"But where," demanded Doug, "did

you get the requisite power even for this limited translation?"

"That was my chief problem," the white-bearded scientist acknowledged. "There was not sufficient within the laboratory of your underground stronghold; there was not sufficient in all the laboratories of your Earth. Only through sub-space vibrations could I tap enough for my purposes. But I did not have the equipment, and time was short. There was only one way to get it—to make Iskra and Ontho supply me with the power I needed."

Doug stared at the old man with a vast admiration. "Now I understand," he nodded. "That was why you deliberately permitted our cube to be captured. That was why you taunted Ontho into turning on the green disintegration. It is based on sub-space energy. Your tanglement of wires absorbed the rays and stored them up until they carried maximum load. Then you turned them loose as a counterblast."

"That was the principle. Unfortunately"—and Er-koss smiled wryly—"I goaded Ontho just a trifle too far. He turned on the rays full energy just at the point when the load had reached its maximum. The excess almost blasted us out of existence."

GENERAL SIMPSON stepped smartly forward, saluted with his one good arm. "What are your orders Mr. President? I have a dozen rocket planes on hand and a hundred good, sound men r'aring to go. Shall I send them out to mop up the Americas?"

"I don't think there will be any need for mopping up," Winslow said quietly. "I have just received a radio message from the revolutionary forces in Europe. The people rose on hearing of Oothout's elimination, and have set up a democratic form of government. They offer the people of the Americas"—a cloud passed over his countenance—"at least those who still survive, a perpetual alliance of peace and amity."

"Which means," Du-lakon burst out, "that a similar situation must already exist on Erdu. With Ontho and Iskra gone, the forces of enslavement must inevitably collapse. We, too," he smiled sadly, "will have but a pitiful handful with which to rebuild our civilization."

"There will be enough," Douglas Aiken said with decision. "The peoples of both universes have learned a bitter lesson. Within the span of a generation the scars of these horrible conflicts will have vanished, and a new and mightier brotherhood will have arisen."

THE END.

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# "HELEN O'LOY"



"Oh," she said. Then: "You're Phil, aren't you? Dave told me about you—that you helped make me."

by Lester del Rey

***Another robot story that, touched with the same sympathy that made "The Faithful," is no more a robot story than that other was a last-war story.***

I AM an old man now, but I can still see Helen as Dave unpacked her, and still hear him gasp as he looked her over.

"Man, isn't she a beauty?"

She was beautiful, a dream in spun plastics and metals, something Keats might have seen dimly when he wrote his sonnet. If Helen of Troy had looked like that, the Greeks must have been pikers when they launched only a thousand ships; at least, that's what I told Dave.

"Helen of Troy, eh?" He looked at her tag. "At least it beats this thing—K2W88. Helen . . . hm-m-m . . . Helen of Alloy.

"Not much swing to that, Dave. Too many unstressed syllables in the middle. How about Helen O'Loy?"

"Helen O'Loy she is, Phil." And that's how it began—one part beauty, one part dream, one part science; add a stereo broadcast, stir mechanically, and the result in chaos.

Dave and I hadn't gone to college together, but when I came to Messina to practice medicine, I found him downstairs in a little robot repair shop. After that, we began to pal around, and when I started going with one twin, he found the other equally attractive, so we made it a foursome.

When our business grew better, we rented a house out near the rocket field—noisy but cheap, and the rockets discouraged apartment building. We liked room enough to stretch ourselves. I suppose if we hadn't quarreled with them, we'd have married the twins in time. But Dave wanted to look over the latest Venus-rocket attempt when his twin wanted to see a display stereo

starring Larry Ainslee, and they were both stubborn. From then on, we forgot the girls and spent our evenings at home.

But it wasn't until "Lena" put vanilla on our steak instead of salt that we got off on the subject of emotions and robots. While Dave was dissecting Lena to find the trouble, we naturally mulled over the future of the mechs. He was sure that the robots would beat men some day, and I couldn't see it.

"Look here, Dave," I argued. "You know Lena doesn't think—not really. When those wires crossed, she could have corrected herself. But she didn't bother; she followed the mechanical impulse. A man might have reached for the vanilla, but when he saw it in his hand, he'd have stopped. Lena has sense enough, but she has no emotions, no consciousness of self."

"All right, that's the big trouble with the mechs now. But we'll get around it, put in some mechanical emotions, or something." He screwed Lena's head back on, turned on her juice. "Go back to work, Lena. It's nineteen o'clock."

NOW I specialized in endocrinology and related subjects. I wasn't exactly a psychologist, but I did understand the glands, secretions, hormones, and miscellanies that are the physical causes of emotions. It took medical science three hundred years to find out how and why they worked, and I couldn't see men duplicating them mechanically in much less time.

I brought home books and papers to prove it, and Dave quoted the invention of memory coils and veritoid eyes. During that year we swapped knowledge un-

til Dave knew the whole theory of endocrinology, and I could have made Lena from memory. The more we talked, the less sure I grew about the impossibility of *homo mechanensis* as the perfect type.

Poor Lena. Her cuproberyl body spent half its time in scattered pieces. Our first attempts were successful only in getting her to serve fried brushes for breakfast and wash the dishes in oleo oil. Then one day she cooked a perfect dinner with six wires crossed, and Dave was in ecstasy.

He worked all night on her wiring, put in a new coil, and taught her a fresh set of words. And the next day she flew in a tantrum and swore vigorously at us when we told her she wasn't doing her work right.

"It's a lie," she yelled, shaking a suction brush. "You're all liars. If you so-and-so's would leave me whole long enough, I might get something done around the place."

When we calmed her temper and got her back to work, Dave ushered me into the study. "Not taking any chances with Lena," he explained. "We'll have to cut out that adrenal pack and restore her to normalcy. But we've got to get a better robot. A house-maid mech isn't complex enough."

"How about Dillard's new utility models? They seem to combine everything in one."

"Exactly. Even so, we'll need a special one built to order, with a full range of memory coils. And out of respect to old Lena, let's get a female case for its works."

THE RESULT, of course, was Helen. The Dillard people had performed a miracle and put all the works in a girl-modeled case. Even the plastic and rubberite face was designed for flexibility to express emotions, and she was complete with tear glands and taste buds,

ready to simulate every human action, from breathing to pulling hair. The bill they sent with her was another miracle, but Dave and I scraped it together; we had to turn Lena over to an exchange to complete it, though, and thereafter we ate out.

I'd performed plenty of delicate operations on living tissues, and some of them had been tricky, but I still felt like a pre-med student as we opened the front plate of her torso and began to sever the leads of her "nerves." Dave's mechanical glands were all prepared, complex little bundles of radio tubes and wires that heterodyned on the electrical thought impulses and distorted them as adrenalin distorts the reaction of human minds.

Instead of sleeping that night, we pored over the schematic diagrams of her structure, tracing the thought mazes of her wiring, severing the leaders, implanting the heterones, as Dave called them. And while we worked a mechanical tape fed carefully prepared thoughts of consciousness and awareness of life and feeling into an auxiliary memory coil. Dave believed in leaving nothing to chance.

It was growing light as we finished, exhausted but exultant. All that remained was the starting of her electrical power; like all the Dillard mechs, she was equipped with a tiny atomotor instead of batteries, and once started would need no further attention.

Dave refused to turn her on. "Wait until we've slept and rested," he advised. "I'm as eager to try her as you are, but we can't do much studying with our minds half dead. Turn in, and we'll leave Helen until later."

Even though we were both ~~reluctant~~ to follow it, we knew the idea was sound. We turned in, and sleep hit us before the air-conditioner could cut down to sleeping temperature. And then Dave was pounding on my shoulder.

"Phil! Hey, snap out of it!"

I groaned, turned over, and faced him. "Well? . . . Uh! What is it? Did Helen—"

"No, it's old Mrs. van Styler. She visored to say her son has an infatuation for a servant girl, and she wants you to come out and give counter-hormones. They're at the summer camp in Maine."

Rich Mrs. van Styler! I couldn't afford to let that account down, now that Helen had used up the last of my funds. But it wasn't a job I cared for.

"Counter-hormones! That'll take two weeks' full time. Anyway, I'm no society doctor, messing with glands to keep fools happy. My job's taking care of serious trouble."

"And you want to watch Helen." Dave was grinning, but he was serious, too. "I told her it'd cost her fifty thousand."

"Huh?"

"And she said O. K., if you hurried."

Of course there was only one thing to do, though I could have wrung fat Mrs. van Styler's neck cheerfully. It wouldn't have happened if she'd used robots like everyone else—but she had to be different.

CONSEQUENTLY, while Dave was back home puttering with Helen, I was racking my brain to trick Archy van Styler into getting the counter-hormones, and giving the servant girl the same. Oh, I wasn't supposed to, but the poor kid was crazy about Archy. Dave might have written, I thought, but never a word did I get.

It was three weeks later instead of two when I reported that Archy was "cured," and collected on the line. With that money in my pocket, I hired a personal rocket and was back in Messina in half an hour. I didn't waste time in reaching the house.

As I stepped into the alcove, I heard a light patter of feet, and an eager voice called out, "Dave, dear?" For a min-

ute I couldn't answer, and the voice came again, pleading. "Dave?"

I don't know what I expected, but I didn't expect Helen to meet me that way, stopping and staring at me, obvious disappointment on her face, little hands fluttering up against her breast.

"Oh," she cried. "I thought it was Dave. He hardly comes home to eat now, but I've had supper waiting hours." She dropped her hands and managed a smile. "You're Phil, aren't you? Dave told me about you when . . . at first. I'm so glad to see you home, Phil."

"Glad to see you doing so well, Helen." Now what does one say for light conversation with a robot? "You said something about supper?"

"Oh, yes. I guess Dave ate downtown again, so we might as well go in. It'll be nice having someone to talk to around the house, Phil. You don't mind if I call you Phil, do you? You know, you're sort of a godfather to me."

We ate. I hadn't counted on such behavior, but apparently she considered eating as normal as walking. She didn't do much eating, at that; most of the time she spent staring at the front door.

Dave came in as we were finishing, a frown a yard wide on his face. Helen started to rise, but he ducked toward the stairs, throwing words over his shoulder.

"Hi, Phil. See you up here later."

There was something radically wrong with him. For a moment I'd thought his eyes were haunted, and as I turned to Helen, hers were filling with tears. She gulped, choked them back, and fell to viciously on her food.

"What's the matter with him . . . and you?" I asked.

"He's sick of me." She pushed her plate away and got up hastily. "You'd better see him while I clean up. And there's nothing wrong with me. And it's not my fault, anyway." She grabbed the dishes and ducked into the kitchen; I could have sworn she was crying.



Maybe all thought is a series of conditioned reflexes—but she certainly had picked up a lot of conditioning while I was gone. Lena in her heyday had been nothing like this. I went up to see if Dave could make any sense out of the hodgepodge.

HE WAS squirting soda into a large glass of apple brandy, and I saw that the bottle was nearly empty. "Join me?" he asked.

It seemed like a good idea. The roaring blast of an ion rocket overhead was the only familiar thing left in the house. From the look around Dave's eyes, it wasn't the first bottle he'd emptied while I was gone, and there were more left. He dug out a new bottle for his own drink.

"Of course it's none of my business, Dave, but that stuff won't steady your nerves any. What's gotten into you and Helen? Been seeing ghosts?"

Helen was wrong; he hadn't been eating downtown—nor anywhere else. His muscles collapsed into a chair in a way that spoke of fatigue and nerves, but mostly of hunger. "You noticed it, eh?"

"Noticed it? The two of you jammed it down my throat."

"Uhm-m-m." He swatted at a non-existent fly, and slumped farther down in the pneumatic. "Guess maybe I should have waited with Helen until you got back. But if that stereo cast hadn't changed . . . anyway, it did. And those mushy books of yours finished the job."

"Thanks. That makes it all clear."

"You know, Phil, I've got a place up in the country . . . fruit ranch. My dad left it to me. Think I'll look it over."

And that's the way it went. But finally, by much liquor and more perspiration, I got some of the story out of him before I gave him an amytal and put him to bed. Then I hunted up Helen

and dug the rest of the story from her, until it made sense.

Apparently as soon as I was gone, Dave had turned her on and made preliminary tests, which were entirely satisfactory. She had reacted beautifully—so well that he decided to leave her and go down to work as usual.

Naturally, with all her untried emotions, she was filled with curiosity, and wanted him to stay. Then he had an inspiration. After showing her what her duties about the house would be, he set her down in front of the stereovisor, tuned in a travelogue, and left her to occupy her time with that.

The travelogue held her attention until it was finished, and the station switched on a current serial with Larry Ainslee, the same cute emoter who'd given us all the trouble with the twins. Incidentally, he looked something like Dave.

Helen took to the serial like a seal to water. This play acting was a perfect outlet for her newly excited emotions. When that particular episode finished, she found a love story on another station, and added still more to her education. The afternoon programs were mostly news and music, but by then she'd found my books; and I do have rather adolescent taste in literature.

Dave came home in the best of spirits. The front alcove was neatly swept, and there was the odor of food in the air that he'd missed around the house for weeks. He had visions of Helen as the super-efficient housekeeper.

So it was a shock to him to feel two strong arms around his neck from behind and hear a voice all aquiver coo into his ears. "Oh, Dave, darling, I've missed you so, and I'm so *thrilled* that you're back." Helen's technique may have lacked polish, but it had enthusiasm, as he found when he tried to stop her from kissing him. She had learned fast and furiously—also, Helen was powered by an atomotor.

DAVE WASN'T a prude, but he remembered that she was only a robot, after all. The fact that she felt, acted, and looked like a young goddess in his arms didn't mean much. With some effort, he untangled her and dragged her off to supper, where he made her eat with him to divert her attention.

After her evening work, he called her into the study and gave her a thorough lecture on the folly of her ways. It must have been good, for it lasted three solid hours, and covered her station in life, the idiocy of stereotypes, and various other miscellanies. When he finished, Helen looked up with dewy eyes and said wistfully, "I know, Dave, but I still love you."

That's when Dave started drinking.

It grew worse each day. If he stayed downtown, she was crying when he came home. If he returned on time, she fussed over him and threw herself at him. In his room, with the door locked, he could hear her downstairs pacing up and down and muttering; and when he went down, she stared at him reproachfully until he had to go back up.

I sent Helen out on a fake errand in the morning and got Dave up. With her gone, I made him eat a decent breakfast and gave him a tonic for his nerves. He was still listless and moody.

"Look here, Dave," I broke in on his brooding. "Helen isn't human, after all. Why not cut off her power and change a few memory coils? Then we can convince her that she never was in love and couldn't get that way."

"You try it. I had that idea, but she put up a wail that would wake Homer. She says it would be murder—and the hell of it is that I can't help feeling the same about it. Maybe she isn't human, but you wouldn't guess it when she puts on that martyred look and tells you to go ahead and kill her."

"We never put in substitutes for some of the secretions present in man during the love period."

"I don't know what we put in. Maybe the heterones backfired or something. Anyway, she's made this idea so much a part of her thoughts that we'd have to put in a whole new set of coils."

"Well, why not?"

"Go ahead. You're the surgeon of the family. I'm not used to fussing with emotions. Matter of fact, since she's been acting this way, I'm beginning to hate work on any robot. My business is going to blazes."

He saw Helen coming up the walk and ducked out the back door for the monorail express. I'd intended to put him back in bed, but let him go. Maybe he'd be better off at his shop than at home.

"Dave's gone?" Helen did have that martyred look now.

"Yeah. I got him to eat, and he's gone to work."

"I'm glad he ate." She slumped down in a chair as if she were worn out, though how a mech could be tired beat me. "Phil?"

"Well, what is it?"

"Do you think I'm bad for him? I mean, do you think he'd be happier if I weren't here?"

"He'll go crazy if you keep acting this way around him."

She winced. Those little hands were twisting about pleadingly, and I felt like an inhuman brute. But I'd started, and I went ahead. "Even if I cut out your power and changed your coils, he'd probably still be haunted by you."

"I know. But I can't help it. And I'd make him a good wife, really I would, Phil."

I gulped; this was getting a little too far. "And give him strapping sons to boot, I suppose. A man wants flesh and blood, not rubber and metal."

"Don't, please! I can't think of myself that way; to me, I'm a woman. And you know how perfectly I'm made to imitate a real woman . . . in all

ways. I couldn't give him sons, but in every other way . . . I'd try so hard, I know I'd make a good wife."

I gave up.

DAVE DIDN'T come home that night, nor the next day. Helen was fussing and fuming, wanting me to call the hospitals and the police, but I knew nothing had happened to him. He always carried identification. Still, when he didn't come in the third day, I began to worry. And when Helen started out for his shop, I agreed to go with her.

Dave was there, with another man I didn't know. I parked Helen where he couldn't see her, but where she could hear, and went in as soon as the other fellow left.

Dave looked a little better and seemed glad to see me. "Hi, Phil—just closing up. Let's go eat."

Helen couldn't hold back any longer, but came trooping in. "Come on home, Dave. I've got roast duck with spice stuffing, and you know you love that."

"Scat!" said Dave. She shrank back, turned to go. "Oh, all right, stay. You might as well hear it, too. I've sold the shop. The fellow you saw just bought it, and I'm going up to the old fruit ranch I told you about, Phil. I can't stand the mechs any more."

"You'll starve to death at that," I told him.

"No, there's a growing demand for old-fashioned fruit, raised out of doors. People are tired of this water-culture stuff. Dad always made a living out of it. I'm leaving as soon as I can get home and pack."

Helen clung to her idea. "I'll pack, Dave, while you eat. I've got apple cobbler for dessert." The world was toppling under her feet, but she still remembered how crazy he was for apple cobbler.

Helen was a good cook; in fact, she

was a genius, with all the good points of a woman and a mech combined. Dave ate well enough, after he got started. By the time supper was over, he'd thawed out enough to admit he liked the duck and cobbler, and to thank her for packing. In fact, he even let her kiss him good-by, though he firmly refused to let her go to the rocket field with him.

Helen was trying to be brave when I got back, and we carried on a stumbling conversation about Mrs. van Styler's servants for a while. But the talk began to lull, and she sat staring out of the window at nothing most of the time. Even the stereo comedy lacked interest for her, and I was glad enough to have her go off to her room. She could cut her power down to simulate sleep when she chose.

AS THE DAYS slipped by, I began to realize why she couldn't believe herself a robot. I got to thinking of her as a girl and companion myself. Except for odd intervals when she went off by herself to brood, or when she kept going to the telescript for a letter that never came, she was as good a companion as a man could ask. There was something homey about the place that Lena had never put there.

I took Helen on a shopping trip to Hudson and she giggled and purred over the wisps of silk and glassheen that were the fashion, tried on endless hats, and conducted herself as any normal girl might. We went trout fishing for a day, where she proved to be as good a sport and as sensibly silent as a man. I thoroughly enjoyed myself and thought she was forgetting Dave. That was before I came home unexpectedly and found her doubled up on the couch, threshing her legs up and down and crying to the high heavens.

It was then I called Dave. They seemed to have trouble in reaching him, and Helen came over beside me while I

waited. She was tense and fidgety as an old maid trying to propose. But finally they located Dave.

"What's up, Phil?" he asked as his face came on the viewplate. "I was just getting my things together to—"

I broke him off. "Things can't go on the way they are, Dave. I've made up my mind. I'm yanking Helen's coils tonight. It won't be worse than what she's going through now."

Helen reached up and touched my shoulder. "Maybe that's best, Phil. I don't blame you."

Dave's voice cut in. "Phil, you don't know what you're doing!"

"Of course I do. It'll all be over by the time you can get here. As you heard, she's agreeing."

There was a black cloud sweeping over Dave's face. "I won't have it, Phil. She's half mine, and I forbid it!"

"Of all the—"

"Go ahead, call me anything you want. I've changed my mind. I was packing to come home when you called."

Helen jerked around me, her eyes glued to the panel. "Dave, do you . . . are you—"

"I'm just waking up to what a fool I've been, Helen. Phil, I'll be home in a couple of hours, so if there's anything—"

He didn't have to chase me out. But I heard Helen cooing something about loving to be a rancher's wife before I could shut the door.

Well, I wasn't as surprised as they thought. I think I knew when I called Dave what would happen. No man acts the way Dave had been acting because he hates a girl; only because he thinks he does—and thinks wrong.

NO WOMAN ever made a lovelier bride or sweeter wife. Helen never lost her flare for cooking and making a home. With her gone, the old house seemed

empty, and I began to drop out to the ranch once or twice a week. I suppose they had trouble at times, but I never saw it, and I know the neighbors never suspected they were anything but normal man and wife.

Dave grew older, and Helen didn't, of course. But between us, we put lines in her face and grayed her hair without letting Dave know that she wasn't growing old with him; he'd forgotten that she wasn't human, I guess.

I practically forgot, myself. It wasn't until a letter came from Helen this morning that I woke up to reality. There, in her beautiful script, just a trifle shaky in places, was the inevitable that neither Dave nor I had seen.

DEAR PHIL:

As you know, Dave has had heart trouble for several years now. We expected him to live on just the same, but it seems that wasn't to be. He died in my arms just before sunrise. He sent you his greetings and farewell.

I've one last favor to ask of you, Phil. There is only one thing for me to do when this is finished. Acid will burn out metal as well as flesh, and I'll be dead with Dave. Please see that we are buried together, and that the morticians do not find my secret. Dave wanted it that way, too.

Poor, dear Phil. I know you loved Dave as a brother, and how you felt about me. Please don't grieve too much for us, for we have had a happy life together, and both feel that we should cross this last bridge side by side.

With love and thanks from,

HELEN.

It had to come sooner or later, I suppose, and the first shock has worn off now. I'll be leaving in a few minutes to carry out Helen's last instructions.

Dave was a lucky man, and the best friend I ever had. And Helen— Well, as I said, I'm an old man now, and can view things more sanely; I should have married and raised a family, I suppose. But . . . there was only one Helen O'LOY.

# "LET CYMBALS RING!"



By M. Schere

*An exponent of the One-Man-Band tangles with a man from the future who came back to our age for a spree!*

**Y**OUR Honor, I had been practicing hard with my one-man band on "The Stars and Stripes Forever," with variations. It is true that people do complain when I start going to town, but you would think that when a retired man is invited to his married daughter's farm he could take along his one-man band and practice. But my grandchildren bawled and the cows started mooing their heads off and wouldn't give milk as long as I played, so my son-in-law, Fred, said why didn't I take my flivver and go down and play to Lizzie the Witch?

"Old Liz was living in Ghost Hollow when my granddad was a boy," Fred told me. "She was ancient then. All we know about her is that she's harmless as long as you don't try to get into her house, and she likes queer noises. She'll like your music, all right."

Your Honor, if it were not for my faith in the one-man band as the musical wonder of our posterity, I would not have gone. And I would not be here in court explaining in my own words—as you said I should—why I have not murdered anybody.

Fred told me that Ghost Hollow was haunted and no one would go into it twice. Didn't bother me. I drove down a lot of back roads, deep into the hills, and after a lot of looking found Ghost Hollow.

It is a steep-sided sort of pocket in the mountains. And it is haunted. Or was. Or . . . no, Your Honor, I do not intend to insult the intelligence of the court. But after Mr. Forty-Four got through with me, I . . . what? Oh, yes, I really should explain one thing at a time. Comes from when I had a milk route, Your Honor, and had to figure out the notes people leave in bottles.

Well, sir, when I got to Ghost Hollow, I saw Lizzie the Witch. She stood before a low house of ancient, moss-covered stones. Her rusty, long black dress fluttered on her skinniness. She was so skinny it just—got you. Her hair was greenish gray and it fell over her face nearly to the ground, with a withered beak of a nose sticking through.

She giggles: "Heh-heh-heh-heh! Welcome to ye, Sir Knight!" She hobbles over and raps her knobby knuckles on the flivver's radiator. "An' ye rid yon valley of its ogreish spell, Merlin himself will do ye reverence."

She grins at me. There was one snaggle tooth.

"I've come to play you some music," I said in a hurry.

"Music!" She got all excited, "Welcome, welcome! Ah, once a knight came riding to his Lady Lisbeth as I languished in the tower of Garth the Terrible! He slew not with the shining sword, but with the thunderbolt! Oh, where is Sir Futureman!"

SHE MUMBLED and grumbled to herself about Sir Futureman while I took the stuff out of the car. Well, between you and me, Your Honor, when I had my milk route plenty of women would tell me their troubles, and I wasn't listening. Also, I was feeling the haunt. I was setting up my pieces under a tree when that vibration began to get me. There was something in the air getting under your skin, getting into your nerves, making your hair twitch on your scalp and the gooseflesh crawl on your thighs and spine. It was almost a sound, but not quite. It was pretty awful.

But I wasn't going to go back and admit to Fred that I was scared to play there.

Lizzie sighs, "Oh, many and many a



time, with recorder and drum and trumpet, I have striven for the sound."

"What sound, Lizzie?" I was fixing the triple-action treadle to my graduated drums, getting the elbow lock in place to manage the violin bow, setting up the cymbals and bells for my other foot, fixing the right-hand assembly so I could switch to fife, guitar, ocarina, saxophone, bugle and harmonica and getting myself generally entangled in machinery, the way you have to be in a one-man band.

"The sound of Sir Futureman!" she says, shivering.

If she meant the haunt, I didn't like Sir Futureman. Which was a premonition, Your Honor, since the haunt and Mr. Forty-Four . . . well, yes, Your Honor, my premonitions are not fit for the record. Howsomever, I went through a chorus of "The Stars and Stripes Forever," and Lizzie nodded and kept time—though every time she grinned I hit a discord. Then I started to go to town with the variations—the ones that made Fred's cows dry up—and she got excited.

"High and shrill!" she yelled. "Higher!"

So I zinged in and out with the cymbals and laid it in the groove for my best effect. It is to get my small cymbal hot and zinging high—reverberating—then sort of catch the echo and bring her up on the fife and thin on the violin together—*tweetle, tweetle, tweetle, tweetle, fweeeeee!*—till the sound passes through your teeth and dances on your backbone. I held her high and sour, enjoying it.

Till suddenly Lizzie shrieked, pointing, and that haunting vibration got in behind my music and gripped me in the guts . . . abdomen, yes, Your Honor.

Lizzie was pointing at a shimmering, wavering thing—almost like heat waves. But it was in a column twice the height and about the shape of a man, and it

poured out the vibration concentrated and terrible.

"It is Sir Futureman!" she shrieks. "It is my beloved!"

The vibration stopped just before it killed me, and I saw the ghost as he grew solid. He was a tall man clothed in a gray coverall without a seam, button or zipper. Only a ghost could have gotten into it. He took a staggering step forward and said, "At last!"

Lizzie the Witch ran for him. "Sir Futureman! Sir Futureman!" she sobs, embraces his legs and goes hysterical.

THE GHOST gazes around wildly. He takes a good look at Lizzie and goes pale . . . no, indeed, Your Honor, I do not wish to try the patience of this court. Not being contemptuous at all. Your Honor, when I was working my milk route I used to use a quarter's worth of salve a week, during the winter, to keep my face from becoming so red that my wife would be ashamed of me. I mean, I am a conservative man. So I assure Your Honor, the District Attorney and the gentlemen of the jury that the ghost was there in the flesh and he grew pale.

"Oh, kiss your Lisbeth!" Lizzie gurgles.

He makes a jump. He is shaking. "Later, Lisbeth! Later!" he says hoarsely.

I was sitting there, Your Honor, with the fife still stuck in my mouth, too scared to be scared, if you know what I mean. He strides over powerfully, pulls away the fife and breaks it in two.

"Here, you!" I shout. "That's my special fife with the super-pitch mouth-piece!" For I am inventive, Your Honor.

"Super-pitch?" says he in his gloomy voice. "Of course." But he didn't talk quite that way. His words were sort of cut in half and he went on something like this, "Ot els may at soun?"

"My little cymbal. I filed and filed it

to get that note."

Which did not, Your Honor, impress him in the least. He kicks my whole cymbal assembly down and whangs the hell—begging the court's pardon—whangs the stuffing out of my little cymbal.

"Nev again may at soun!" he says sternly, his big eyes glowing and his high forehead flushed. . . . Very well, Your Honor, I will not repeat any more gibberish. Fact is, when he got oriented he used plain English. Seems that his talk was a sort of time-saving lingo they are going to use in the future . . . just a moment, just a moment, Your Honor, and you will see what I mean . . . but really, I'm not contemptuous of the court. But I tell you, I did not like that ghost chap.

"You will be useful to me," he says. He picked me up—he has the strength of ten men—and shoved me through the rotting door of Lizzie's house.

First thing I saw was that the house was just a cover for a deep excavation which was divided into rooms and levels, lighted mysteriously from nowhere. Lizzie following him like a dog, he hauled me downstairs and opened a big room with a steel door two inches thick.

He tells me, "I built this place hundreds of years before the discovery of America by Europeans." . . . Yes, Mr. District Attorney, that is what the ghost said. No, I did not believe it either.

The room was full of books, maps, newspapers, and much machinery. The whole place kind of stank—begging the court's pardon—stunk—but he said it was a preserving gas. He asked me what I was doing there and I told him.

"Unattached man?" says he. "Good. I can use a servant."

"What's all this about?" I jittered.

HE LEANED back and laughed. Your Honor, he has the meanest laugh I ever heard. "This is my triumph! Deprive me of the privileges of the

Forty-Fourth, would they! Afraid of strain in the control dimension if I time-traveled, were they? Well—let it strain, say I! By one chance in a trillion, I have materialized in the Epoch of Major Personal Satisfaction. I have over a hundred years to go before the rise of the sterile thinkers changes this materialistic, individualistic civilization. By that time, however, my presence in the past will have caused such slippage of the axis of simultaneity that life on the Earth will end in chaos."

Your Honor—and you, too, Mr. District Attorney and Mr. Briggs. Howya doin', Mr. Briggs? It was tough on you, all right, having the court appoint you as my attorney. Well, all of you can imagine how much that meant to me. My eyes must have been as glazed as—as Your Honor's . . . but, sir, I only meant . . . yes, sir, yes—

Well, everybody, the ghost said more! He said: "By then, however, I will have traveled ahead to a time when the major axis of simultaneity will have re-established itself in equilibrium. I will enjoy a new civilization—till I ruin that one. I am a buccaneer!" he shouts, drawing himself up. "Destruction! Destruction! And then I will build anew, and there will be none to challenge me—the fools," he snarls.

He had a grudge, all right.

Lizzie began to paw him and mutter, "Sir Futureman!" but he pushed her away and went to something like a huge adding machine that he started whirring. "Ah!" he said later, "it will require a stay of one hundred and four days, eight hours, twenty-seven minutes, two and two tenths seconds to establish my abnormal time line irrevocably in this epoch, beyond the possible effect of accident. Of course," he sneers to himself, "I can stay for one hundred and four days!"

Which, Your Honor, I want to point out to the court. That it was then the 29th of September and today is January 10th. I mean, a hundred and two

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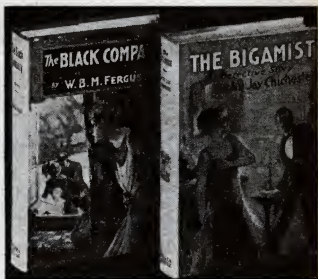
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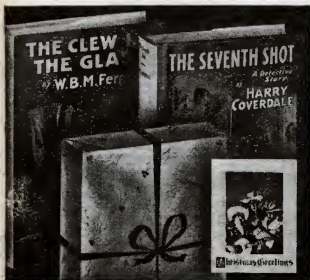
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days have passed and Mr. Forty-Four is still at large. I mean, if he isn't caught and set down with me and a one-man band to get made into a ghost again, something awful is going to happen. Which is what I was trying to tell them all the time I was in the psychopathic ward. Your . . . all right, Your Honor, I know the court is not interested in fairy tales, but . . . yes, sir, I know, but I'm telling you that if that fellow is let run loose . . . oh, no, sir! No contempt intended!

I tried to keep calm and asked him his name. He drew himself up and said: "Lex Pando, Space-Time Forty-Four! The Council demoted me to Thirty-Seven for disobedience, but what care I for the Council now! Now and forever I am of the Forty-Fourth, supreme in science!"

Lizzie couldn't contain herself. "Oh, Sir Futureman! Sir Futureman, my knight!" she giggled. "Oh, an' ye can, make me young once more for your knightly love!"

He laughed. I hoped Lizzie didn't see his expression as clearly as I did. "We shall see," he sniggered, pushed her ahead of him and went out, locking me in.

WELL, YOUR HONOR, that was a pretty kettle of fish. I just wandered around that tight-shut room, examining things.

I came to a shelf full of almanacs which started with 1882. I looked along the shelf, seeing how the books became more modern in printing and binding—till suddenly I realized I was looking at an almanac for 1942. Which, considering that it is only 1939, you might call strange, Your Honor. And the almanacs ran up to the year 2018, by which time they were made of paper-thin metal!

Your Honor, I was just afraid to look at them. Only I saw the one for 1940, and that one, I figured, would tell

about what happens during 1939, so I took a chance and opened it to Review Of The Year. Now, I would like to tell Your Honor what I saw there, provided Your Honor will not punish me for contempt of court. For it was something very, *very* contemptuous of the court . . . yes, there has been enough contempt of the court in my whole damn story, but . . . if I might whisper it to Your Honor, then? . . . Sorry. But would Your Honor please remember that I saw *something* contemptuous of the court in that 1940 almanac?

Well, I poked around and saw that Mr. Forty-Four had long lists of prices of stocks and bonds, also running to eighty or ninety years from now. And he had results of the World Series, Kentucky Derby and all sorts of sporting events prophesied 'way up to the year 2000 and beyond, along with thousands of results of ordinary horse races. Also results of elections. Your Honor, about that third term; Mr. Roosevelt decided . . . Oh, no, I don't think I'm capable of running the country and I don't know anything about it, no, sir.

The air in the room was getting pretty foul when Mr. Forty-Four came back, and hanging to his arm was a plump, fair-skinned, golden-haired girl of about twenty; a perfect stranger.

Then she said, "Oh, make me truly young, Sir Futureman!"

Even the new teeth stuck in her mouth couldn't hide that croak. It was Lizzie the Witch! And as she walked into the room she still hobbled like a woman a hundred years old.

"Synthetic flesh," growls Mr. Forty-Four. "Pulverize me if it doesn't take more than flesh to make a woman."

Which was so—in an awful way. There poor Lizzie stood, tears coming to her new china-blue eyes, and you could just sense the brittle old bones under that whatever-it-was he had grafted onto her.

"I'll make you young when I have

the necessary chemicals," he says—and behind her back he sneers.

Then he had me write down a long list of things—lots of chemicals, wires, radio tubes and such. He gave me a thousand dollars out of a sort of filing system where he had money sorted out in various periods . . . s'fact, Your Honor!

He told me to take the flivver and buy the stuff in Newtown. He didn't have to tell me twice to go out. But he also said, very quietly, "Swear you will tell no one of what has happened here."

"Sure!"

I DROVE out of Ghost Hollow and scrambled down the State road. When I saw a State trooper standing by his motorcycle I stopped, jumped out and almost kissed him. I told him the whole story and he looked pretty grim.

"Tall, thin, big-headed fellow?" says he. "The cleverest crook out of jail, and he is known to have an old woman as confederate!"

"Just what I thought! He made me say I'd be quiet, but there's no harm in breaking your promise to a crook."

The State trooper grinned at me. This trooper was a swarthy man with a broken nose and cauliflower ears. Tough-looking.

"But there is a great deal of harm in breaking your word to Lex Pando, Space-Time Forty-Four!" he says softly.

Your Honor, that was Mr. Forty-Four! And while I stood there petrified he wiped his face off his face. He . . . Your Honor, it is what I saw, and . . . well, what is the District Attorney objecting for? I tell you that. . . . well, maybe I should have said that he wiped the false face off his face. It was this here synthetic flesh, even with a stubble of beard in it.

"Now go!" Forty-Four snarls. "You see how easy it is to deceive me!"

I got to Newtown and bought everything, but I sure was shaky. Had to

get out of it somehow! I was driving down Main Street when I saw my daughter.

"Mabel!" I yelled.

She came over, smiling and looking beyond me a little, as though someone was in the back seat of the flivver. Which wasn't so odd, Your Honor, since Mr. Forty-Four was there . . . yes, Your Honor, it is damn tomfoolery, but there he was, wearing an old sweater and a felt hat with trout flies stuck in it.

All I needed was one look from his black brooding eyes. "Mabel," I gulped, "this is Mr.—er—Lucius Pando, who used to have the next milk route to mine. We're—er—going camping. Might be a couple of weeks."

I made up a whole story and Forty-Four spoke as nice as you please. But when Mabel left and I turned to speak to him, he was gone.

Which is why I did just as he asked and got into trouble with the law. He had me, Your Honor, coming and going. I kept quiet, and so would Your Honor . . . but I really didn't mean to be contemptuous! The only contemptuous thing I know about this court is what I saw in the 1940 almanac, and if Your Honor will only let me tell . . . all right . . . but . . . very well.

Your Honor, I stayed in Ghost Hollow for three days while Mr. Forty-Four did a lot of reading and figuring and Lizzie mooned around in her new skin looking pretty mournful.

NOW, I WANT to tell you what Forty-Four said about simultaneity, because it may help to catch him. "Do you realize that simultaneity depends on the axis of view?" he demands of me one day. (I had had to sleep on a lot of old sacks, and my lumbago was hurting.) Says he: "Suppose you wanted to plot the positions of ten men who start walking from one point and go in different directions at varying speeds. You want to show where each of them



is for every five minutes during an hour. You take twelve plates of glass, and after five minutes you mark ten dots on the first plate, representing, in scale, where each man is at that instant. After another five minutes, you take the second plate and mark ten more dots, moving each dot to correspond with the movements of the men. And so on for twelve plates. Do you follow me, lame-brain?" he snaps.

He looks scornfully at poor Liz, who does not follow very well. "We will suppose the men to have been walking on level ground, so that their motion took place in only two dimensions. No up or down, numskull. Suppose we pile our plates atop one another, in order, and fuse them into a solid glass block. We shall be able to see the dots through the glass, going from top to bottom. We can imagine curves drawn from dot to dot—a curve for each man—till we have ten curves going down through the block, each representing the motion of one man in length, breadth and time." Does Your Honor see? . . . Oh, I meant no insolence at all, at all!

So he drools on: "Suppose we wanted to see where those men were after half an hour. We might slice through our block halfway between top and bottom, at a plane parallel to each. We would then expose a bit of each curve showing, simultaneously, the position of the ten men. Right?"

"Now, half-wit!" he sneers. I tell you, Your Honor, I was getting not to like him! "If we cut a section through the block that was *not* parallel to top and bottom, would the sections of curves exposed show simultaneity?"

"No, sir!" I tell him, very chipper. "If you slanted your cut you'd expose bits of curves representing motions of different men at different times, instead of simultaneously."

He sniggers: "Wrong! That is,

wrong from a cosmic point of view. We of the forty-ninth century know that the plane of simultaneity may be valid at any angle to the major axis, or the axis itself may shift. Man One's position at starting," says he triumphantly, "may be simultaneous with that of Man Ten at the end of the hour. Surprised?" he grins—and he has a mean grin, Your Honor. And he is mean. If Your Honor would give me permission for just one minute to be contemptuous of the court . . . yes, but I saw it in next year's almanac . . . no, I do not want to go back to the psychopathic ward . . . well, that's what he said.

He goes on: "The axis of time is four-dimensional and may therefore be shifted through our three-dimensional world. By shifting with it, I travel in time. I have—for my own existence—made this epoch coincident with the year 4821, when, through controlled audible and sub-audible vibrations, I achieved my first disintegration."

HE LEANED back and his deep, hard eyes grew dreamy. "Out of romantic curiosity, I went to England and to the time of King Arthur—"

Lizzie jabbars: "Sire, my knight! Sir Futureman!"

"Yes," he grins devilishly, "it was amusing to clothe myself in armor of impermeable lightweight alloy and tilt against noble louts carrying a hundred pounds or more of poorly tempered steel. And to puncture them neatly with a lance that drove a diamond-hard needle from its point as it made contact! Ha, ha! Well, it was amusing to rescue Lisbeth from the local baron—or bandit. When young, she made a good—er—companion. Then we came to this undiscovered land to perfect my apparatus, for I was—and still am—at the mercy of an accident.

"I had subjected Lisbeth to a partial semi-immortality treatment when the accident happened. Upon establishing this

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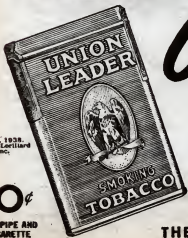
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*"Futureman—Mr. Forty-Four, that is—was feedin' that music into old Lizzie and her synthetic flesh stuff. 'My bones are humming!' she says."*



place I had eliminated an Indian village. One day I was working outdoors on certain large reverberatory apparatus when an Indian shot an arrow at me. I do not have to be careful about defense—as nothing short of complete dismemberment can kill me—but the arrow struck my apparatus and sounded a high, piercing chord. It was the fundamental note of the complex vibrations which govern my materialization. That was the last thing I heard for a thousand years. It made me a tenuous mass if disassociated molecules, the state I must assume for time-travel. But I had not set the apparatus to sound the note again and reestablish my solidity. I was vibrations, filling this valley, helpless.

"Then you with your—er—one-man band"—Your Honor, I did not like the way he said it—"sounded that unpleasant note again. My molecules coalesced and I materialized—by the merest chance—in the era I desired. I found Lisbeth, undying, grown horribly old—"

Lizzie moons up at him and croaks: "I guarded your treasure! Ay, the years were long!"

"And you shall have your reward," he says snakily. "Now, I must make myself immune to chance vibrations. It may take years of work. But there is no hurry," he says, leering. Your Honor, could that fellow leer! "Remember that after I stay in this epoch a hundred and four days, my existence will cause confliktion of different axes of simultaneity, and within a century chaos should begin. A world in which each creature will cause its own time-warp; in which a man may, while he butters his morning toast, observe his smiling young wife change to a long-dead, moldering skeleton! The cat you put out at night may before morning become a saber-toothed tiger, lairring on your doorstep!" And, Your Honor, he laughs and tells me that pretty soon everything will be all mixed up and dead

for a thousand years or so. When things are normal again he'll be around to bust them up. For meanwhile he'll be time-traveling, and it will be just like tomorrow morning to him. Get it?

So then, Your Honor, we went to the racetrack . . . eh? Damn nonsensical, idiotic tomfoolery? Sir, I have sworn that my name is Herman Doakes and that I will tell the whole and nothing but, and after all, I was there and you weren't . . . oh, no, no contempt! But if you knew what was in that awfully contemptuous almanac . . . all right, all right, I'll get on to the end of the tommyrot, but I wish the District Attorney would stop drawing those pictures of a gallows on his pad.

SO WE WENT to the racetrack. Of course, he won. Sportsman? He knew the result of every race before it was run! He . . . well, Mr. District Attorney, I'll bet you wish that you . . . yes, sir. Mr. Forty-Four bet the limit and raked it in, and the bookies watched him goggle-eyed.

Then we went to a stockbroker and he bought a pile of stocks on margin. Which skyrocketed, of course. He just had to look at his advance lists. And just to be funny, I suppose, we went to a gambling joint and he lost a thousand bucks playing roulette.

"Just imagine!" he tells me disgustingly—though he wasn't disgusted about losing. "Chance-taking is going to be bred out of the human race by scientific puritans!"

Which you can think what you like about, Your Honor, but I gathered later that he was sort of having a fling. That this time of ours is just a real old red-hot burlesque compared with what's to come, and he liked it. Era of Major Personal Satisfaction—get the idea, Mr. Briggs? Your Honor, Mr. Briggs is asleep. The Forty-Four fellow acted like a pirate on a spree, all right.

Then he got me and poor, terrified Lizzie into a plane and we went to New York and got an apartment in a big hotel, where I had to be his valet. Then he started tearing around—mostly without Lizzie. No trouble having the company of women, the way he spent money. He bought himself a wicked low foreign car that he drove a hundred miles an hour over Long Island. When a cop would catch up to him he'd just disappear—and me in the rumble seat, Your Honor!

When he got to like liquor, it was pretty bad. He'd fixed up a laboratory and he'd come out of it with some devilish instrument shooting rays which might turn Lizzie or me freezing cold, or paralyze us and float us out the window . . . yes, Your Honor, in the air! Just like a big kid, he was—but, boy, you could see he was just relaxing, not being as dangerous as he was going to be when he got around to being dangerous!

He sure did like to disguise himself. Or does, I should say, for he's still at large. Give him that synthetic flesh and a few of his rays and he'd be 'most anything.

Once he paralyzed the elevator boy and ran the elevator himself. He was very polite—said "Floor, please?" 'n' everything—only he had a dragon's head and was breathing fire . . . yes, I thought the foreman of the jury would remember that riot in the Circle House. Aren't you the fellow who came in drunk and swore off when you . . . s'cuse me, Your Honor. I think I'm worrying about what I saw in that almanac. You know, that contemptuous . . . all, right, all right.

And then he . . . eh? Well—if I may answer the District Attorney—it is pretty ridiculous to say that a scientist would stoop to such nonsense. But Mr. Forty-Four was just relaxing, just getting his Major Personal Satisfaction.

Now, I should like to say that he was toying with the idea of getting aboard a battleship and starting a war—and he still may do it. Or piling up a lot of money—billions—and hiding it, just to see how world economy would react. He's won over a million in bets I had to place for him myself. Yes, and . . . now, wait a minute. What about the law Congress passed last week? The law forbidding persons under six months of age to work in diamond mines, that they're yelling now they don't remember, but it's on the books? Ha? That was Forty-Four's mass hypnosis! And what about the speech made by that visiting diplomat, announcing that for the cause of world peace his country's army would be equipped only with putty blowers—till all of a sudden he yelled that someone had been talking through his mouth? Forty-Four! Just wait till he gets serious!

I tried to sneak out one night. But an invisible force lifted me back to bed. That was all.

Your Honor, please, may I tell you just once that contemptuous thing it said in the 1940 almanac . . . well, but honestly, after what happened at the concert, I . . . oh, that's what you've been waiting to hear all this time? O. K., Judge!

WELL, FORTY-FOUR got started on his anti-accident-to-himself research. Get it? Ha, ha! We took everything from the mountains and he wiped Lizzie's old house level with the ground. He set up a lot of stuff and soaked Liz full of music. He said when her body was attuned to the right vibrations, she'd be truly young—which sure made her happy though she still was ashamed to show her legs. He got an ordinary phonograph and a record of some operatic music I'd heard before and played it into a cap full of wires that set on Lizzie's poor head. But I did not trust him, Your Honor. He smirks and



sneers. He leers.

Sure enough, Lizzie seemed sort of electrified. "My bones are humming," she says dazedly.

Does he leer! He got a lot of small, complicated apparatus into a little box that he strapped under his pants. "The processes of justice and law in this era are rather intriguing," he tells me. "I think I shall use you to test them under certain peculiar circumstances."

And I have that hanging over me when we arrive at the concert . . . why, yes, the concert given by Maestro Maganini, the same fellow who'd recorded the song Forty-Four had vibrated Lizzie with. It was the same orchestra, too. We got toggled out like swells and got a box right over the stage. The hall was crowded and the concert was being broadcast. Wagner music, it was.

Well, as soon as Lizzie started to peel that way, I . . . eh? Oh, I'm thinking of that almanac again. Well, they start rolling home with "The Ride of the Valkyries." Valkyries are kind of witches, Your Honor . . . s'cuse me. This is music with weird, shivery trills, and I recognized it as the music Mr. Forty-Four has been feeding into Lizzie.

And, after a minute, Liz stood up and let out an awful shriek.

Then, as everyone turned to look, I had a knife in my hand and I was jabbing at her. Which was as surprising to me, Your Honor, as it was to Maestro Maganini, because Mr. Forty-Four had put that knife in my hand and was vibrating me like I worked on strings. But I was not hitting the real Lizzie! I was jabbing that synthetic skin lightly, hacking it right off her!

Say, she shrieked like a steam callopie, but she hardly noticed me. She quivered like a leaf and the skin started to slough off by itself.

"Futureman!" she shrieks. "The sound! The sound! Oh—" she moans, and she drops.

I LEAPED out of the box, down to the stage—helplessly. "Stop that murderer!" Forty-Four howled after me. I yelled back—he made me do it—"*Sic semper tyrannis!*" Making ten-foot hops, I smashed through the orchestra, grabbed a bass viol and slapped it down on Maestro Maganini's head, which damaged the viol considerably. I ran to the microphone, my throat paralyzed, and Forty-Four made me yell: "Down with the government! Down with everything!"

I was attacked at that moment by the maestro, with the same bass viol, and most of the orchestra. Then police and people were rushing onto the stage and collared me. Your Honor may or may not believe it, but the first cop to reach me was Mr. Forty-Four. He sniggered in my ear and said: "Well done! Now, let us watch the wheels of justice."

I'm afraid that is about all I can tell you. I can't explain the death of—how'd it go?—the old woman who died of shock induced by cutting into a putrifying compound with which she had been plastered. You can see that I had no intention of shouting anarchistic mottos into the radio without license to broadcast, nor of assault and battery. Nor am I crazy, as my lawyer insists, nor a dangerous criminal, as the District Attorney insists. It is my notion that Mr. Forty-Four fixed up Liz with that "Ride of the Valkyries" till it took just one more shivery trill to kill her. Poor Lizzie, she's better off.

Forty-Four is the fellow you want. And you want to get him soon, or I will not be responsible for your simultaneity. Your Honor may have to eat dinosaur eggs . . . no, no, no contempt intended! But if I only might, please, tell you what that contemptuous almanac said . . . yes, it would constitute contempt of court, and there is no reason why the court should give anyone permission to calumniate it.



But I have a hunch that Mr. Forty-Four is in this courtroom . . . ridiculous? But he said he was going to watch the wheels of justice, and, Your Honor, I have a plan. I . . . very well, Your Honor, I will explain my ridiculous theories to whoever wants to listen, while you go back to get one of your law books . . . all right, all right, Mr. District Attorney, it's irregular, but His Honor runs this court, doesn't he? So long; I hope you find the right law to get me out of this, Your Honor.

NOW, Mr. District Attorney and gentlemen of the jury, did you ever hear of occupational therapy? I never did either, till they found in the psychopathic ward that I like music, and they let me play around to get my mind normal, or something. They let me fix up a fife with my super-pitch mouthpiece, and a cymbal and one violin string. Will someone poke Mr. Briggs, there? Poor Mr. Briggs, he didn't like keeping all this truck in his suitcase. Well, here it is, and I'll clamp it up to the chair, so.

You see, with this fife, cymbal and string I have part of a one-man band, and I can make that sound that brought Mr. Forty-Four around in the first place. The harmonic vibration of his molecules, remember? Now, he never

seemed to perfect his apparatus for making himself immune to that sound, so if he's nearby when I play it, he will be disintegrated again and our simultaneity will be saved for our posterity. You'd be surprised how I had to file this cymbal and adjust things till I got the right note, which I know by the way it jars my fillings.

Well, if Mr. Forty-Four is hiding in this courtroom, he is going to be sorry! Here I go, zinging up the cymbal!

Stop? What for, Your Honor? No, sir, I am going to play that chord once and here goes! *Tweetle, tweetle, tweetle, tweetle, fweeeeee!*

Hey!

What . . . where's . . . where's the judge? He was here a second ago! He . . . he came in the front door and started to rush down the aisle, waving a book . . . and . . . he's disappeared!

Say . . . he must be—

Wh-what's that vibration! It's getting under my skin! It's getting into my bones—and everybody's bones! Oh . . . *the judge was Mr. Forty-Four!*

Look! That book he dropped! It's the almanac for 1940! It's the one with the contemptuous statement about the court—that they had to build a new courthouse because this one is haunted!

## TWO FAVORITES RETURN—

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# "THEY HAD RHYTHM!"

by  
Kent Casey



## *Private Kelton finds the home-planet of the jitterbugs*

CAPTAIN CARROLL had finished his breakfast and was thumbing over the file of radio flimsies received during the night. There were the usual sheaf of routine schedule reports, the usual number of

messages to Corporal This and Private That regarding baby's new tooth and "Did you register the allotment?" One suddenly caught his attention for it was addressed to him.

"Orion reports deposit believed to be

tantalum pentoxide crystals in stream at Long, 128° W., Lat. 30° 15' N., on planet Merovingia in Formalhaut System. Earth's supplies of tantalum practically exhausted. *Beagle* directed to delay arrival at Rigel VI to investigate and confirm discovery. If crystals tantalum take formal possession according Interplanetary Treaty of August, 2483. Advise."

"Orderly," called Captain Carroll, "ask Mr. Stoney to come here, please."

Commander Stoney read the order and looked up, questioning. "I hope it's true," he said. "The visor illuminators we've been getting recently are terrible. Visions all blurry and flickering. The shops back home could use some tantalum, all right."

Carroll nodded. "Yes, it's a valuable find if true. But what I am wondering—we're shorthanded now, and the Base on Rigel VI needs every man of this garrison company we're bringing them. The treaty is specific as to legal claim to a mineral discovery. To make Earth's title clear we must leave at least one man in residence for forty-five days, during which he must actually do some work on the claim. We can't spare any of the officers, and we need all our men, too."

Stoney rubbed his jutting chin thoughtfully. "Captain, how would Kelton do? He's bright, and he knows a lot of stuff—but he's completely worthless aboard ship most of the time. Works well when he decides to work, but that isn't often. Chronic ship jumper, too. Marooning him for two months might do him good."

Carroll looked up interested. "The very man!" he said. "He won't do much work on the claim, but if he picks up one crystal a day, it will satisfy the law. Orderly! I want Private Kelton."

When Kelton appeared, he was obviously worried. Summons to the cabin usually meant trouble. He had thought

that, for the time being, his conscience was clear—he could remember no fault committed since his last punishment. He saluted stiffly and stood silent.

"Kelton," Carroll began, "do you know anything about crystals?"

"Not much, sir. A little."

Carroll explained the *Beagle's* new orders and what they implied. "And I think," he concluded, "that this detail may be for your benefit as well as ours. You will be left with plenty of provisions and supplies, and you will of course have a force-pistol in case you encounter any dangerous animals. Merovingia is supposed to be uninhabited, but nobody knows very much about it. If there are human or semihuman people there, endeavor to avoid any trouble with them. To make the claim legal, you must find and store at least one crystal every twenty-four hours, for the forty-five days' work must be continuous. The ship will be back to pick you up two months after you land."

KELTON still kept silent, but his eyes showed lively interest. "Remember," the captain continued sternly, "that you will be on duty twenty-four hours a day! You will have food and medical stores, but nothing to drink. During your stay, besides the crystals, you must put up a marker with the name of the ship, your own name, and the dates of your residence deeply carved. Understand?"

Kelton saluted again. "Yes, sir. When do I begin?"

"Day after tomorrow. That's all, Kelton. Have your kit ready for inspection by tomorrow afternoon."

"I hope he doesn't go to sleep on this job," Stoney commented as the private left the cabin.

"I don't think he will," rejoined the captain. "He's a queer fish. Apparently can't work unless he's interested. When he is, he's a good man. Scatter-brain. He must have something new all

the time. Well, he's getting a big dose of novelty this time."

News never remains long a secret in a cruising ship. Orderlies overhear, yeomen who have taken dictation look wise until cornered and "reluctantly" made to tell, radio men gossip. When Kelton slouched into his seat at the mess table, he was at once bombarded with questions and commiserated.

"Golly, sixty days all alone on a strange planet! I'd rather be in the brig!" commented Carson.

"That's what comes of being a bum!" grimly admonished Sergeant McClure. "If you behaved yourself and worked now and then you wouldn't get a detail like that."

Kelton yawned and waved a hand airily. "You birds annoy me. You have no spirit of adventure at all. It would suit you fine and dandy if nothing ever happened. Little busy bees, you are. Me, I'm different. Excitement is what I like."

"Yeah, excitement! Doing your own cooking and policing your own camp. Picking up pebbles and building a claim marker. Merovingia's uninhabited, they say. There'll be no bright lights and beer."

"Well, it'll be sixty days I won't have to listen to your chatter, Big Boy. Two months of my own company won't be so bad."

When Merovingia came into view the chaff grew heavier. "Will you look at the size of that mudball! Kel, you're going to have about double gravity to fight from the looks of it. Those big feet of yours will weigh a ton apiece!"

"Then I'll lie down and roll!" Kelton retorted. "And anyhow, I'd rather sit still."

WITH LITTLE difficulty, the stream in question was located—wide, shallow, and coursing over a glistening gravel bed. As the air was still, the *Beagle* swung low to a repeller anchor rather than land; and an exploring party scrambled down a short rope ladder to



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the river bank, pawing over the gravel. Rhombic crystals were scattered all through the deposit.

"Looks like tantalum pentoxide all right," Commander Stoney said. "We'll take a couple aboard and give 'em a flame test to make sure. *Oof!*" he grunted as he straightened up and started back toward the ship. "Kelton, you ought to develop some leg muscles before you leave here. I feel like I was carrying a wardrobe trunk!"

Analysis having proved the crystals to be tantalum without a doubt, a tent was quickly set up on the river bank and ample provisions stacked across one end of it. Kelton groaned inwardly as he lugged his field kit and tool chest to his new quarters; and his banjo with its steel-rimmed head was a real burden. The effort to lift his feet made him roll from side to side like a dancing bear. "Here's one place you won't run away from!" he muttered to himself.

Nevertheless, he kept a superior and grinning countenance as he waved farewell to the departing ship. The *Beagle* slipped out of sight rapidly. Kelton began to realize that he was alone.

"Laboriously he trudged the few feet to the river bed. His heavy feet, dragged by the tremendous gravity, stumbled; and he fell to his hands and knees. The shock of his increased weight numbed his wrists. "*Wheew!*" he whistled. "I got to be careful or I'll bust a bone. And *that* wouldn't be funny!" He rubbed his wrists back to normal, and still on his knees, looked at the gravel.

"Without moving, he was able to pick up three of the colorless, rhombic crystals. "Well," he philosophized, "there's three days' work done! Nothing to do till tomorrow." Moving gingerly, he slowly plodded back to his tent and, lying flat on his back, stared at the clear sky. Little wander-clouds drifted lazily across the blue and the soft breeze kept

the forest murmuring. Kelton went to sleep.

It was mid-afternoon when he aroused, cramped from sleeping on the hard gravel. Getting up was an effort. "Damn this heavy planet! How is a guy to do anything weighted down like this?" Hunger forced some effort, however. He opened a can of beans and slowly devoured them, with an effort tossing the empty can out into the current of the stream. It acted as though a rubber band snapped it to the ground. After a time, though not so hungry, from sheer boredom, he broke into a can of corned beef and sat munching gloomily. Sixty days like this! He had forgotten to bring anything to read. "Doggone if I won't be forced to work in self-defense," he sighed.

He went to his tool chest and selected the lightest maul and chisel he could find, and a piece of chalk. He plodded to the cliff face behind his camp and began to lay out his marker inscription, chalking the letters carefully and viewing the effect with head cocked on one side.

ALAN KELTON, PVT. S. P., SS.  
BEAGLE OF TERRA CLAIMS THIS  
DEPOSIT OF MINERALS IN THE  
NAME OF THE TERRAN GOVERN-  
MENT. IN COMPLIANCE WITH  
LAW THIS CLAIM HAS BEEN  
WORKED FROM AUGUST 19, 2499,  
TO OCTOBER 1, 2499, INCLUSIVE.  
CLAIM RUNS FROM SOURCE TO  
MOUTH OF RIVER.

"That's too darned much stone to cut," he admitted to himself and rubbed out his legend. After several attempts at composition, he at last got it to his liking.

A. KELTON, TERRA, SS. BEAGLE,  
8/19/2499 . . . 10/1/2499. MINING  
CLAIM ENTERED ENTIRE RIVER.

"That's better," he said to himself, picked up his maul and chisel and wearily cut the letter "A." "A crystal

a day and a letter a day. Let's see . . . no, there are sixty-three letters. That won't do." Solemnly pondering the question, he changed the word "entered" to "make." That came out just right!

Back in his tent, he finished the corned beef, and, as the sun had set some time before, rolled onto his cot and slept till morning.

Daybreak found him awake and his first movement taught him that his muscles were lame and stiff. Huh! This gravity sure is something! Couldn't be lamer if I'd swung a pick all day yesterday. Damn! Now I've got to work or something to get this soreness out.

Creaking and groaning, he waded into the shallow stream and sat neck-deep in the sunlit water. After soaking luxuriously for half an hour, he left the water, picking up crystals as he waded for shore. "Combining business with pleasure, by gosh! I've worked the claim this day already."

By the time he had gathered enough driftwood for a fire, made coffee and scrambled a small package of desiccated eggs his legs felt better. "I'm beginning to get the hang of it, I guess. But my arms feel like lead. Kel, old-timer, it's good the gang can't see you. They'd razz your life out. Old Private Kelton working when nobody's looking! Huh!"

Maul and chisel were set to work. It was hard to lift his lame arms at first, but by the time the sun and his appetite told him it was again mealtime, he had chipped "KEL" in the soft limestone following the "A." of last night. He looked at his work with an approving eye. He tried to loaf through the afternoon, and he took another bath in the river. Once or twice he reached for his banjo, but his weary arms decided to let it lie. Aching and bored, he again went to sleep.

AT THE END of six days, the bag in the tent held nearly a half-bushel of

tantalum crystals and the marker was more than half done. Leg muscles were beginning to bulge at calf and thigh and his arms felt almost natural. Life here wasn't so bad after all, but he wished he'd something to read or a pup to play with. Again he reached for the banjo, and this time it didn't feel so dreadfully heavy. As he started to settle it on his knee he found the butt of his pistol in the way. Unslinging the belt he hung the gun on his tent pole. His evening fire was blazing brightly in front of the tent, throwing flickering red lights over the shadowy forest. He tuned the banjo and began idly to strum an ancient, jingling tune, improvising words as he played. He hummed for a few bars and then lifted up his clear, high tenor.

"There's a Geiger tube in the dynamo room," he carolled.

*"It fills my days chock-full of gloom!  
When I want to have fun and start to  
get gay,  
'Tut! Tut! Tut!' says the Cosmic Ray!"*

Da! De, di, do! Plink! Plunk! rattled the banjo. Then Kelton stopped, listening intently. Was that something moving back there in the trees? But he could hear nothing besides the forest rustle, so he again began to pluck the strings.

*"Oh, the work in the dynamo room is  
tough.  
I do what I can, but it never is—"*

His breath left him in the middle of a note and he stared, appalled. An eighteen-inch, copper-colored hand had grasped his front tent pole—the one on which his gun was hung. There was a wrench and a snapping of guyropes, and his tent was flung up and back toward the cliff, leaving him sitting on his cot and staring into the grim, expressionless faces of half a dozen tawny giants. They appeared eight or nine feet tall to his bewildered eyes, and about four feet



across the shoulders. Lank black hair fell around their faces, and they wore clumsily made tunics of what looked like smoke-tanned cowhide. They gazed down at Kelton, their eyes unwinking, and muttered excitedly to each other. The banjo slipped from Kelton's nerveless hands and fell to the ground with a musical crash.

One of the giants immediately picked it up, staring with puzzled eyes. He gently poked the strings with a great, blunt finger, and the banjo's resultant "Brrrrmp!" so startled him that he nearly dropped it. The banjo passed from hand to hand in a flurry of guttural chattering, then one of the giants held it out to Kelton.

"Doggone! He wants me to play it again!" With shaky hands, a shiver down his spine, Kelton twanged at the strings. The giants squatted in a ring around him. He began to play jigs, rags, dance tunes with intricate breaks. The giants swayed in unison. As the music grew livelier, they rose to their feet and began to stamp and swing. Now and then one of them would bay like a moon-struck hound.

"Why, darn their big hides, they've got rhythm! They're whacky!" and Kelton's fingers flew still faster.

Then with a shout, a giant seized Kelton, banjo and all, and swung him to his shoulder. Half running, half dancing, the giants trotted into the dark up river, grunting in time to their pounding feet. Whipping branches slashed across Kelton's face, and as he put up his arms to avoid them, a giant took the banjo from his hands. Then an overhanging bough gave him a sharp rap on the forehead and Kelton lost consciousness. But the giants ran on.

THE *Beagle* had found the fuel tanks on Rigel VI almost depleted, so the ship had to wait for nearly two weeks until a tanker arrived with fresh supplies. When at last she was able to start her

return voyage, both captain and executive were anxious. "Kelton had a good lot of stores, but he's so damned careless. We've got to make time getting back to him," Stoney said nervously.

Carroll nodded silently. Even without the delay, he had been dubious at times, and wished that he could have left at least two men behind. After Stoney's description of the gravity-pull of Merovingia he had often had an uneasy vision of Kelton alone with a broken leg. Parks, the engineer, was jamming on every ounce of speed of which the old ship was capable; but Merovingia was a long way off.

Arrived at last, no time was lost in getting down to the river bank. At the deserted camp site the horrified captain saw Kelton's tent torn and collapsed in a tangle of broken guys and snapped pegs. The majority of his provisions, untouched, lay in a tumbled heap. The gravel was trodden, but was too loose to have retained anything resembling a footprint. To Carroll's intense relief he could find no bloodstains—"but it might have rained," he warned himself.

His first surprise stopped him in his tracks as the little party reached the cliff face. In deep, four-inch capitals appeared the legend, "A. KELTON, TERRA SS. *BEAGLE*, 8/19/2499-10/1/2499. MINING CLAIM—"

"Something got him before he could finish his marker," Carroll said sadly. "Why didn't I leave two men?"

"Captain, look there!" cried Corporal Mellor, and pointed. Stacked neatly against the cliff were over a hundred great bags of untanned hide, each filled to the lip with crystals. Smearred in some red pigment on the side of each was "SS. *Beagle*. A. Kelton, Pvt. S. P."

"He must have worked like a beaver!" Carroll said. "From the looks of his supplies he can't have been much more than a week here."

"Kel never did all that, captain!" Mellor insisted. "I'll go bail he's made

friends somehow and had help. Besides, where would he get bags like that?"

"That's true! I hope you're right, Mellor. We must find what became of him anyhow. Scatter and look for traces, lads."

It was laborious trudging, and the men had to stop every few feet to rest from the strain of working against the gravity. In a wide fan they spread out and slowly worked their way up the river. In the first hour they barely succeeded in covering a quarter mile. Carroll was about to call a halt for rest when Carson yelled from the river bank. "I've found something, sir! Good Lord, come look at this!"

At the edge of the trees, where gravel gave way to humus, the appalled men saw a number of footprints. But what footprints! Nearly twenty-four inches long, but undoubtedly human. A well-worn path through the forest led up the hill.

"And they told us this dump was uninhabited!" grunted Mellor.

CAPTAIN CARROLL looked grim. "Applegate," he ordered, "go back to the ship and tell Commander Stoney what we have found. Tell him that if I am not back on board by nightfall he is to send a heavy-armed search party tomorrow morning. But meanwhile, keep all hands on board and keep a bright lookout, with ladders up. Mellor, Carson—you two come with us. Keep your pistols handy, but don't shoot at anything unless I give the word. Up the trail!"

For another painful hour they trudged, the path becoming plainer and plainer. At last it forked, and the three leg-weary men halted gratefully to consider which path to follow. The question was soon decided for them. Around the bend of the right-hand branch there came five huge, copper-colored men at a swinging run, a great leather bag of crystals on the back of each. Their eyes

and mouths opened as they spied the trio of Earthmen, but they did not slacken their pace. As they flashed past, the expression of their blank faces might have been a grin or a snarl—just a toothy slit in a swarthy expanse of brown skin. Startlingly, they shouted in unison as they passed.

"*Ta! Ta! Ta! Sissa kawmy kray!*" they roared like a trained cheering section, their great feet thumping in time with the words.

For the first time, the captain's face began to clear. "I begin to think you're right, Mellor. Kelton must be alive, for those bags were marked in his writing and the paint was still wet! He's found some way to get those giants to help him."

"Kel would! He's just the boy to do it," Mellor chuckled. "I wish I could run in this damn gravity the way those big guys can. Golly, what muscles they've got!"

"I wish I knew what they were saying," Carroll said. "Still, they showed us the way. Let's go."

Carson was frowning. "They sounded to me like they were trying to sing," he said. "To sing something I know . . . the tune anyhow. '*La, la, la, la, la la—*' yeah! Captain, I bet Kel taught 'em that tune! 'And another little drink won't do us any harm!' Don't you get it?"

"Well, we'd better find him. Come ahead," Carroll laughed. "Uh! This is hard walking!"

But just then the path behind them trembled again under the feet of the giants, returning without their burdens, running in perfect step with each other. They halted as they overtook the Earthmen, and broke into an elaborate wing dance. "*Haw! Paleema! Habby fee!*" they bellowed. Before the three could lift a finger, each was seized and perched on a giant shoulder. The skipping, dancing run started again.

"And this is hard riding!" Carson

panted. "Whoa there, Dobbin, you're makin' me seasick!"

"Listen!" warned Carroll suddenly. Far ahead could be heard a rhythmic trampling of many feet. *One, two, three, four! One, two, three, four!* A roar as of many deep voices boomed through the trees, "*Ta! Ta! Ta! Sissa kawmy kray!*" followed by faint tinkling notes, then a single, faraway tenor.

"It's Kell! Listen!" cried Mellor. Faintly the song came down the wind.

*"In the dynamo room the work is tough,  
I do what I can but it never is enough!  
If I try to catch a snooze in the middle  
of the day,  
'Tut! Tut! Tut!' says the Cosmic Ray!"*

"*Ta! Ta! Ta! Sissa kawmy kray!*" came the crashing chorus, and the ground trembled to the stamp of heavy feet. The five runners sped faster, but never lost the rhythm.

*"Some day I'll be even with that damn  
little tubel  
I'll pay it for making me feel like a  
boob!  
When the work's all done, I'll have a  
right to play  
And thumb my nose at the Cosmic Ray!"*

*Da! De, di, do! Plink, Plunk!* throbbed the banjo as the party burst from the trees into a large clearing surrounded by grass huts. Kelton, on top a high boulder, was strumming intricate variations. "All together, now, bullies!" he shouted. "All . . . policemen . . . have . . . big . . . feet!"

"*Haw! Paleema! Habby fee!*" sang the crowd, and the ground again quivered to their thundering shuffle.

CARROLL, Mellor and Carson were set gently on the ground just as Kelton slid from his boulder and saluted, grinning sheepishly. His uniform strained over swelling new muscles, and his cheeks were round with good living.

Hands on hips, Carroll frowned down at him, but the corners of his mouth

were twitching with relief and amusement.

"Well, Kelton?" he asked dryly.

"Why, sir," Kelton said, stammering a little, "I was working the claim all right, and had got the marker most done, when I started to play the banjo one night. A crowd of these big boys smashed my tent and made me play for 'em. Goofy about music and dancing, they are. They kidnaped me and brought me here. Wanted me to play all the time, but I wouldn't until I'd picked up some crystals every day. Finally they got the idea—no crystals, no sing-song. More crystals, more songs. They've been piling them down by the marker, sir. Did you see 'em?"

"Yes, about as big a cargo as we can carry this trip. You look as if they had been feeding you and treating you well."

"Swell, sir! And . . . and . . . I kind of made them a promise. You know that funny old music-box in the crew's quarters—the one you turn a crank? Everybody aboard is sick and tired of it, but these guys would eat it up. If they could have that box, I bet they'd gather crystals every day and stack 'em before they play it. All the ship would have to do would be to come get 'em, and maybe bring these fellows some sort of musical instrument. They're crazy about rhythm, sir. They've got it. They're regular jitter-bugs."

The tallest of the giants exploded into guttural speech, and the four Earthmen were picked up and carried into the largest of the huts. "Hope you don't mind, sir," Kelton explained. "I told 'em when you came back I'd have to go. Rule of the tribe, sir—no visitor can go until he's had a meal with the chief. The chow's good, sir. It really is."

Spread on the dirt floor of the chief's house were a dozen mammoth wooden platters. Sitting on their heels, the

Earthmen found that they were ravenously hungry—and what was set before them was not the desiccated, preserved, concentrated ration of the skies.

"Kel, you lucky bum!" mumbled Melor with his mouth full. "Fresh meat, fresh fish, fresh eggs, fresh milk and fresh bread!"

"No wonder you got fat," added Carson.

"Yeah," admitted Kelton. "But like a nut I forgot to bring my tobacco when I came ashore."

CAPTAIN CARROLL took a pack of cigarettes from his pocket and tossed them. "Kelton, you have done a good job! I really don't think anybody else could have done as well. I couldn't, I know. I haven't 'got rhythm' as you seem to have."

As the four rose, each was again grasped and settled on a huge brown shoulder. One giant handed Kelton his banjo. A thundering rumble of drums almost deafened the party.

"This is my contribution!" Private Kelton shouted through the syncopated din. "They were pounding logs for rhythm when I came. I showed 'em how to stretch a hide over a hollow stump."

The entire tribe followed the bearers down the trail at a dancing trot. When they reached the cliff, each reached for

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and shouldered a heavy bag of crystals. "Great jumping Pegasus!" cried Stoney as the prancing parade ran into view of the ship.

"Open a cargo hatch and rig a whip!" shouted Carroll when within earshot. "And send down that old hurdy-gurdy in the mess room!"

Rapidly the bags of crystals were hoisted aboard and the four men climbed into the ship. "Prepare to take off," ordered Carroll.

Private Kelton stood in the air-lock door and grinned at the milling crowd below. His fingers swept his banjo strings. *Da! De, di, do! Plink! Plunk!*

The gravel of the shore spurted under the flying heels of the big brown men. "*Haw! Paleema! Habby feet!*" chanted the Merovingians in rhythmic unison.

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# STORED POWER

By Arthur McCann

**A brief science item suggesting a problem and a challenge. It offers no solution—but perhaps some of our electrical engineer readers can make further suggestions and contributions?**

THE "pickaback" plane, *Mercury*, hopped off for Africa recently, staggering under an enormous load of gasoline that weighed about as much as the plane. The *Mercury* came down short of its goal for lack of energy. Man's methods of storing and releasing energy are so thoroughly ineffectual that, even when boosted into the air by a helper and started on its way, it failed.

There's power enough in this world; it isn't that we lack. But it isn't where we need it. Waterfalls eternally wasting their energy in tropic jungles or desolate semi-arctic regions, in uninhabitable high-mountain territory or otherwise remote country. Vast coal beds in Alaska with stored energy that we can't use because the cost of shipping that coal consumes more energy and effort than it can release.

The industrial revolution came with the steam engine because the steam engine gave them power *where they wanted it*. Before that invention, water wheels had been the only usable source of industrial power, and the only way to ship power was on belts or shafts. As our modern cities are laced and festooned with the feeder lines of electric power, their mill cities were laced and festooned with creaking, squealing "power lines" of rope drives and belt shafts. Ropes running from pole to pole over squeaking pulleys transmitted the turning power of water wheels as much as a mile from the stream to "distant" plants. They couldn't ship it farther.

The steam engine fed on coal—and they could ship coal-power. Because they could ship it, they made it ship it

self on the railroad that it made possible. Industry, suddenly released from the shackles of rope belts and millwheels, spilled out over the world. They'd learned to ship power.

The steam engine, like all heat engines, was heavy and clumsy. Worse than others, it was a two-stage process, converting heat of combustion to latent heat of steam, then tapping the latent energy of steam for mechanical power. But you could ship coal, and the coal made the locomotive go.

The internal-combustion engine that used the heat of combustion directly made for a lighter engine and the automobile. Industry sprawled a little farther, edging back farther from the railroads. And—man sprouted wings because he had a lighter system of energy-storage-and-release. Energy stored in gasoline and released directly in the internal-combustion engine.

And—he's stuck right there. Electric power can't be shipped, yet electricity is the only truly flexible form of energy. A cool glow of red-hot coal can be stepped up, by electricity, to the blazing incandescence of a carbon arc. Normally, the energy of a cool source cannot increase the temperature of a hotter body. Electricity is the most versatile, useful energy we know. And we can't ship it because we can't store it.

We can feed it along pipes, of course, just as they shipped water power along ropes and pulleys. (We use copper ropes and porcelain insulators instead of pulleys, and we can ship it that way almost two thirds as far as a man can see from an airplane.) That's not a



very satisfactory advance. Waterfalls in tropic jungles go on wasting power, and the coal fields of Alaska are useless because we can't ship their energy without shipping their useless bulk. And our wings are clipped because the gasoline weighs more than the plane. Those distance-record planes are fuel tanks with wings, and the only thing they carry forward is the distance record.

Because we can't store energy in directly usable form.

A condenser does, of course. The Leyden jar stored enough to knock out a whole line of soldiers who didn't know what they were in for. The modern development of the gadget will store energy enough to blast a tree or explode a heavy copper conductor to incandescent gas. But it won't run a motor for thirty seconds. The only way we have of storing electric energy enough to run even a small motor—such as a starting motor—is in the indirect form of electrochemical energy. And a noteworthy commentary on the perfection of our energy-storage methods is the fact that that battery uses lead as a fuel—the common epitomization of weight!

We need a direct storage, a direct method of hording electric energy either as an electric field or in the form of its twin brother, the magnetic field.

THE CONDENSER represents the former, of course, storing a microscopic amount of energy in a strained-field phenomenon. At present, the difficulties experienced with condensers—they tend to discharge instantaneously—are largely illusions due to the small quantity rather than to inherent quality. They miss the ideal properties with respect to utility in only one way: the quantity is so tiny. That is not an insuperable handicap—all known forms of electric energy storage have that fault in practically equal degree. But the condenser approaches the ideal in these respects: it can be charged and discharged at any

rate the conductors leading to it will stand. It will handle very respectable voltages. It is dry, light, compact, and will last forever. It is essentially easy and cheap to manufacture, and maintenance is zero. It's one inherent fault is that it supplies energy at a constantly diminishing pressure; the voltage falls steadily as energy is withdrawn.

Theoretically, a condenser of huge capacity, then, would be an excellent method of storing power for shipment and use at a point distant from its source. No one, however, has remotely approached the necessary capacity. An automobile would need a condenser of about 10 megafarad capacity—10,000,000 farads, when a microfarad, a millionth of a farad, is the usual unit of capacity in modern equipment. We need an improvement of about 100,000,000 times. Not so good.

Well, how about the magnetic energy storage? The inductance coil, the other handy method of storing energy that can be directly withdrawn as electricity, is little further advanced. A coil of wire wound round a magnetic core stores energy in the form of magnetic strain in space—so long as the current flows. Where the condenser is static energy, the magnetic field is kinetic energy; it escapes instantly if the current is broken. If we had a super-inductor, with a powerful current flowing ceaselessly, we could tap off a bit of that current, and, as a little was diverted, the magnetic field would relapse, giving up its energy to rebuild the current. Magnetic energy can be "stored" in a sense in permanent magnets—but once made static in this way, it becomes inactive.

So, seemingly, the magnetic method is even worse than the electrostatic.

Perhaps we can find a new method, a different angle of attack, that can really strain those near-infinite numbers of individual atoms in a single bit of matter, just slightly, perhaps, but enough to have real stored power that we can ship.

# IN TIMES TO COME

**Astounding's** first *Nova* story ran longer than I expected. That's why Arthur Burks' story of the *Arachne* and Josh McNab had to be delayed till next month. But they'll be there, in company with the return of another character who has, very evidently, made an impression. Following the coming *The Incorrigible*, we should, perhaps, refer to John Black, Esq., with less familiarity. Johnny, you see, wins a degree for services rendered.

L. Sprague de Camp has, in this new story of his highly educated (holder of a college degree) bear, put into practice the suggestion embodied in the words of an old popular song. It makes a tale as remarkable as Johnny himself.

Norman L. Knight, an all too infrequent visitor to these pages, has contributed *Saurian Valedictory*, a story that, by its very forcefulness, makes one a bit uncomfortable.

But the cover for next month also is of importance. Our new artist illustrates a scene from Vic Phillips' *Maiden Voyage*—a striking and unusual cover that, I think, is as effective and realistic in its presentation as Phillips' near-*Nova* grade story.

**Nuisance Value**, Monly Wade Wellman's serial, draws to a conclusion. Personally, one of the things that I enjoyed most about that yarn was Wellman's epilogue. A lovely thought for historians of that future—

The material coming in for issues still further futureward is looking far better than it did some months ago. **Astounding** has improved; its improvement has evidently inspired authors to improve with it. Which, of course, improves **Astounding**. Which in turn—

I think it's cyclic and self-perpetuating!

The Editor.



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## THE ANALYTICAL LABORATORY

The prime function of the Laboratory this month is to explain the error in last month's cover. Below, two small cuts. On the left, the picture of Jupiter as it was shown; at the right, as it should have been shown. The left-hand cut represents the favorite method of showing the Moon at just short of full. That memory may be what fooled many, and made it difficult to recognize at once. Actually, that type of shadow is a typical eclipsa-shadow.



Fig. 1



Fig. 2

Directly below is a representation of the circumstances needed to produce the type of shadow shown in Fig. 1. An eclipse shadow on Jupiter is impossible, because nothing in the System is big enough to eclipse the planet save Jupiter itself. Ganymede has been outrageously exaggerated, and it still wouldn't give the shadow shown.



Fig. 3

And, finally, Fig. 4 shows the position of the bodies assumed for the cover. Jupiter would appear from Ganymede as shown in Fig. 2. Incidentally, the actual eclipsa-shadow of Ganymede on Jupiter is so small no one has ever seen it.

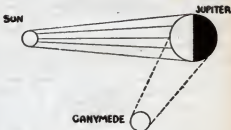


Fig. 4

The standings of the stories in October:

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|---------------------|--------------------|
| 1. The Command      | L. Sprague de Camp |
| 2. Other Tracks     | William Sell       |
| 3. Hunger Death     | Clifford D. Simak  |
| 4. The Tramp        | L. Ron Hubbard     |
| 5. The Ceres Affair | Kent Casey         |



### Rocket Math.

Dear Editor:

I am sorry to see that Mr. Stanley still thinks there may be something in Vernon's rocket equations. Familiarity breeds contempt, and I had always taken the exponential law of motion for granted. It had never really occurred to me that anyone should object to it, any more than an astronomer would expect the inverse square law to be challenged. I first came across the law in a physics text book years ago, and have, of course, met it ever since in practically every book on astronautics that made any claim of being technical. I was under the impression that it was common knowledge.

In the first case, it should be immediately obvious that the equation of motion of a rocket must be exponential in form, owing to the fact that the mass is continuously variable. Vernon himself states that, according to his equation, a rocket must burn half its exhaust. This should have given him furiously to think, for it is only (approximately) true of a projectile fired from a gun, and obviously cannot apply to a rocket which has to carry its own fuel. This fuel needs more fuel to accelerate it while it is still unburnt, and that fuel needs more fuel to carry it. The result is an infinite converging series which, when summed, gives the exponential equation.

I hope it is now clear to Mr. Stanley that Vernon's equation cannot possibly be right—not that that proves that mine is either. So my "holony" generalization still stands, and I am not likely to retract it. However, I am grateful to Mr. Stanley for pointing out just where Vernon came unstuck—though this is a matter of purely academic interest. It leads us in a vast circle of a year's diameter (and therefore, presumably, three years circumference) right back to the dear old "Irrelevant" and as it is not my wish to litter up the pages of "Science Discussions" with more math than necessary, I am not going to reopen that fight. If I find the energy, I will deal with d(Mv) direct with Mr. Stanley.

I quoted Ley's article because, at the end, the law of motion

$$\frac{v}{x} = \frac{M}{m}$$

(Where M and m are the 'original' and final masses of the rocket) was explained in great detail. Does Mr. Stanley imagine that when a

mathematical law is set out in an otherwise non-mathematical article it becomes a different law? Incidentally, I hope Ley will not mind me mentioning the fact that I have a couple of letters from him giving his full support in this scrap.

Should Mr. Stanley still imagine that this equation is my personal discovery (in which case his doubts might have been well-founded) perhaps he will turn to the space-traveller's Bible, Robert Esnault-Pelterie's "L'Astronautique". The proof begins on page 49, goes on to page 50, breaks out into a graph on page 51 and produces our exponential friend (Equation 1.66) at the bottom of page 52. Mr. Stanley may well be thankful that I gave a simplified version!

Stanley is, of course, correct in pointing out the mistake I made towards the end of my letter when I tried to turn the law into words. I should have put it:—For a rocket to travel as fast as its exhaust, it must burn enough fuel to bring down its mass to 1/eth of the original mass. I know it's clumsy, but it is not easy to express in words—hence my lapse in the previous letter. I hope no one was misled by it.

I also hope that this finally settles the matter, for it is every important that incorrect information respecting rockets should not be allowed to get around—especially now that people are beginning to realize that a rocket must not have air to "push against". If anyone else has any queries on the subject, I shall be pleased to answer them, or else pass them on to the Technical Committee of the B. I. S. Otherwise Brass Tacks will be flooded out with math, and that, of course, would be tragic—Arthur C. Clark, Hon. Treasurer, British Interplanetary Society, 88 Grays Inn Road, London, W. C. 1, England.

### Rocket refrigeration?

Dear Mr. Campbell:

Will one of the rocket experts—Willy Ley, Peter van Dreeser, or other authority—satisfy me on one question that is at present troubling me? How would one reckon the temperature of a rocket-jet exhaust?

Here's the problem; the temperature of a gas depends on the random motion of the molecules composing said gas. Right? Fine. We have a combustion chamber wherein, let us say, hydrogen and oxygen are burned, producing molecules of hydrogen oxide endowed with a great deal of random motion, or heat, and under consider-

able pressure. The gas is ejected from the chamber through a carefully designed nozzle which protects them in a directed stream.

Now, the essence of the rocket's operation is to convert the pressure-temperature energy of the combustion products into the high-velocity stream of ejected gas. If the nozzle were long and fine enough, only molecules moving straight backward would emerge. No random motion. Therefore no heat! Then the exhaust of a rocket ship should be positively cold; the take-off of a rocket a thing to be attended only when wearing fur pants and heavy gauntlets, perhaps?

That, of course, is *reductio ad absurdum*, but the temperature of the exhaust does have one real significance. Hydrogen and oxygen unite—but not if the temperature is too high. If the exhaust of the rocket motor has a temperature 2800°, combustion is fairly complete. At 3200° it would be rather incomplete. But if that 3200° gas is cooled in the jet, by that physical process of directing the motion, what is the effect on the burning of the fuel?—Charles Drew, 82 Blagden Street, Boston, Mass.

### Zinc into platinum—in value, anyway!

Dear Mr. Campbell:

In response to your request about those single crystals: they were quite unbelievable and the readers probably won't believe it, either. But anyway—

They are growing single crystals of various metals in a number of laboratories. I understand, to study the properties of metals. To study compounds it is best to start with elements. A piece of normal metal is made up of innumerable crystals, and studying an individual metal crystal corresponds to the study of elements in chemistry.

The process of "growing" them is no home-laboratory stunt. They start off with what is termed "five nines" metal—zinc, aluminum, copper, whatever it may be. "Five nines" means that it's 99.999+ % pure whatever metal it may be. (The best iron available, incidentally, seldom runs better than four nines; zinc and some of the others can be had at six nines, and, possibly, seven nines. Iron is immensely harder to purify.)

The extremely pure metal is melted and held exactly at the melting point, while a small center of crystallization is started. A very very slowly the crystal is withdrawn, maintained constantly almost precisely at the melting point. In about two to three months the single crystal has been grown—a twelve-inch-long rod three fourths of an inch thick. (It is then worth, approximately, its weight in platinum.)

The rods are, actually, almost perfectly circular, but the eye simply cannot believe the fingers' message. The eye sees a frosty-looking rod of aluminum, say, that is, perfectly obviously, shaped like the streamlined struts on an airplane. The surface is beautiful; it gives one the impression that it is some marvelous frosty-silver velvet, a curiously fibrous, sparkling sheen that is quite indescribable. There is nothing comparable.

It is this curious surface that tricks the eye into the firm belief that the rod is a flattened oval; being a true, single crystal, the optical properties vary with different axes. Rotating the rod slowly, one plane of crystallization reflects the light, then another plane with different properties is reached, and the reflection changes. The transition is darker; it gives the effect of being somehow flattened.

The mechanical properties of the crystals are as startling as their appearance. Normally, zinc metal is fairly hard, quite reasonably strong, and moderately brittle. It is becoming an important manufacturing asset because of the ease with which it can be die-cast to form anything from typewriter frames and carburetor bowls to "tin" soldiers. Single-crystal zinc rods twelve inches long are so unbelievably soft that, held at one end in a horizontal position, they slump like

warm wax! They bend—these solid-metal rods thick as a broomstick—so readily that their collapse between the fingers is startling.

Aluminum single crystals are somewhat stronger than zinc. At least, they don't slump of their own weight, but whereas normal aluminum in a rod three fourths of an inch thick could not be bent by even a strong man, a girl has no great trouble bending these in the fingers of one hand.

So sharply are the atoms of the crystals lined in rows and files that a zinc crystal, broken across, snaps to yield a mirror surface—a flat, astonishingly brilliant polished surface. These cleavage planes usually run at an angle to the long axis of the rod crystal. Normally, a bright zinc surface tarnishes in the air within minutes to a dull finish. But these atomic-plane mirror surfaces remain brilliant for months.

The useful results of these researches are slower and less obvious. There is some reason why blamutb metal is brittle and copper tough; why iron is malleable, yielding and shaping smoothly under forges—when it's "malleable" or "wrought" iron, and breaks when the same thing is tried with hard steel. Forged copper is hardened by the pounding and remains hard; worked zinc is hardened—but softens again. We don't know, yet, all the story behind these reactions.

If we know a little more about why a metal crystal acts as it does—and how it does act, for that matter—we may be able to do some remarkable tricks with alloys. Zinc hardens under pressure and softens on standing—slightly, though, in each case. How about making an alloy that was as soft as pure lead or gold, perhaps, but could be pressed into a form and become hard as iron—for a week. Then it would soften and be ready to take another form.

We'll learn—and, seemingly, there's no end to the tricks alloys can play when you know all their ways—Arthur McCann, 761 Scotland Road, Orange, N. J.

### Willy Ley says that the concentric feed system mentioned was suggested to him by Carver.

Dear Mr. Campbell:

I read with great interest the article "Why Rockets Don't Fly" by my good friend Mr. Peter van Dresser. He knows whereof he speaks. Particularly so, as he again describes the "Rocket Mail Planes" that were flown at Greenwood Lake, New York. This flight has already become historic, and is touched upon whenever anyone reviews the recent progress made with rockets. And since the rocket gliders were made in my shop, I have a natural, personal, interest in it.

In some ways this flight resembles the Kitty Hawk flights of the Wright Brothers. Unlike them, however, there were many publicity errors commonly circulated in the papers about the Greenwood Lake flights.

Some of the most glaring errors were, for instance, that the ships were supposed to reach the unheard of speeds of five hundred miles per hour (before the flight) and five hundred miles per minute (during preparations to fly them) and, finally, five hundred miles per second (after they flew at little better than the sixty miles per hour they were designed to do.) Naturally these experiments were labeled a flop. Only sixty miles per hour! Poopy!

A reason, aside from the transportation of mail by rocket, for the historic nature of the flights was that it was the first successful use of a rocket motor for pay-load conditions, and the first self-cooling rocket motor for long-time service. Actually, such motors have run for as long as thirty-seven and a quarter seconds, at efficiencies as high as eleven percent.

I attribute the high efficiency and non-burn-out qualities of these motors to a concentric



feed that was used in this flight in which Willy Ley played a prominent part. (At the inception he got the stamp dealer interested in the flight, and persuaded him to use rocket-powered gliders.)

The concentric feed for the liquid-fuel rocket motors did not solve some other difficulties experienced, however. I refer to the bitter cold we experienced. It was so cold that a light oil used in the hydraulic ram of the test stand to record rocket-motor thrusts froze, and had to be warmed to properly record the reaction. Needless to say, we froze also. Also the oxygen lines froze, as well as the spectators who were waiting for the pesky lines to be cleared of ice. My assistants and I worked all night every other night to get the planes and the catapult built in a month and a few days. Ever hear of the scientist who, alone in his lab, builds a space ship in a few days? Well—don't believe it!—Nathan Carver, Reaction Research Laboratories, 304 West 25th Street, New York.

### Burks' Anti-gravity idea.

Mr. Donald West,

Care of Science Discussions.

Dear Donald:

I just read your article in Brass Tacks and was particularly interested in the comments concerning the gravitational field in "Hell Ship."

I had just made a remark to a friend of mine that I thought the science in the story was excellent. For the first time an author had published what would happen "if" the force of gravity could be conquered.

Picture it for yourself. If the field of gravity could be utilized as described, there could be no lateral movement without some external force such as the use of rocket power—which would be expensive.

Now in proceeding from Earth to a planet, the only way you could hope to arrive there would be to time the departure so that when the ship rose to a certain height above the Earth, it would intercept the gravity field of the other planet. If the timing were imperfect, there is no telling where the ship would finally wind up.

The mathematical problem would be complicated, because the ship would actually leave Earth in a spiral, the final direction being dependent on the time of departure and the rate of motion. This would be quite critical. I would appreciate hearing from you on this subject.

Incidentally, I am one of those electrical engineers the editor was talking about—Jack H. Watson, 533 East Zion, Tulsa, Okla.

## BRASS TACKS

**Sadly, the rumor is yet false. When that happens we promise three-color illustrations and gold-plated binding clips.**

Dear Mr. Campbell:

Having received the latest Astonishing, and having examined it with due attention I can now feel qualified to emit my opinions of this most worthy magazine. However, before going on, I might inform you that a rumor has been going on about this magazine called Astonishing Science-Fiction. This rumor, while certainly false, should warm the editorial heart. The rumor itself originates in Canada, and it states that the circulation of dear AS-F is 2,500,000 per issue. Isn't that interesting?

However, if it were, it wouldn't be that long with covers like that on the September issue. For a minute I thought that was another science-fiction magazine which has made its recent appearance. You know, Mile. Casa Fabia in the bathing suit, with a Martian Rose Bud sprawled on the floor and Joe Louis' hefty right

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hand sticking through the port-hole. It is so typical of scientific advancement and ideals. The story that it represented, "Treasure Asteroid," is in itself passable.

Robert Willey always spins a good yarn, and "Orbit XXIII-H" was in no way a poor story. In fact, it is up to his "At the Perilous," which is one of the "better stories."

However, with such a name as the preceding, the title of the next story, "X1-2-200" makes the magazine read like an Algebra book. The two of such similar titles should have been in different issues. It was just a fair story.

"The Tramp," while being quite fantastic in story-theory, was by dint of good writing a most interesting story. Let's hope that the other chapters are as good.

"Double! Double!" wasn't half so funny as you said it would be, but it did have its humorous parts, even though it was somewhat of a let-down in my opinion. I'd say that it was good.

"Impulse," was a mediocre story, just average, and the title seems to be very misleading, like that of the recent movie "Island In The Sky."

For once Arthur J. Burks lets his usual hack-style go, and turns out a really good story. I'd rate "The Trapper" as first in the issue, one that is really unique and high interesting. "Robots Return" strikes me as a most poor story. I don't know why, but it just seems to have no point, but just a lot of words.

There's your last issue; not good, not bad, but not on the level of the most of the magazines in the New Deal, the Campbell Era.—T. Bruce Yerke, Sec. L. A. Clapt. S.F.L., 1207 1/2 N. Tamarind Ave. Hollywood, Calif.

## Hubbard did "The Dangerous Dimension" in the July issue.

Dear Editor:

I have been reading the Astounding Science-Fiction since it was first published many a year ago. Many of your stories and features I enjoyed very, very much. But I can truthfully say, I've just read the first instalment of one of the best stories I have ever read. The story is "The Tramp," by L. Ron Hubbard. I can't say I recall any other stories by Mr. Hubbard, but I can say I am one of his most faithful followers from now on.

I congratulate you on your giving us a different type of scientific story and wish you would continue to do so. I, for one, am sick of the sky-rocket types of stories.

I can hardly wait for your next issue, to read the next instalment.—Paul H. Friedel, 2315 Wichita Ave., Baltimore, Md.

## Jack Binder is Eando's brother.

Dear Mr. Campbell:

After much delay of one kind or another, my letter for this month rolls merrily in. This—the October—issue is rather interesting. It's another average issue. No, maybe a bit better than average, because of one story. More about that later.

When I first got a look at the cover I didn't like it so much. I don't know why. But the more I looked at it the better I liked it. Now I think it's a first-rate job. You just have to get used to it. All the little colored lights sailing around. (It should have been on the December issue—regular Christmas spirit!)

Best story of the month, and perhaps of the year, is "Other Tracks." It gets about \*\*\*\*\* stars. Absolutely no complaint.

2. "Orestes Revolts." The brothers Binder turned out a nifty little short. Humorous, just as I like 'em. It seems that more and more humor is turning up in S-F. all the time. It used to be all dry, tough stuff. I'll bet someone's gonna scribble me for that! \*\*\* to "Orestes."

3. "Hunger Death." This was plenty good! Nearly a tie with the above. It rates \*\*\* 1/2.

4. "The Ceres Affair." Mr. Casey! Are you sure you're the same guy that wrote "Flare-back" and a couple of other top-notch yarns?

This was definitely not up to your standard. Giving you the benefit of the doubt, you get \*\*\*.

5. "Sunworld of Soldus." And what has become of the Schachner of "Pacifica" and many, many others? You can write stories that rate five, six, or even more stars, but the best I can give you for this is \*\*½.

I don't think the others are worth bothering about. By that I don't mean "The Tramp," for I haven't read that yet.

Oh, yes. This guy Wert rates a complaint. Zeke's gun is exactly like the rocket pistols of Buck Rogers. He's not such a hot artist, either. Wesso, I am sorry to say, is not improving. What's the matter with him?

Is Jack Binder a relation of Earl and Otto? Well, Astondding is still doing fine, but I know a certain other magazine that's going to give a good bit of competition.

So long till next month—Tony Strother, 5020 Dodge Street, Duluth, Minnesota.

### ***Somebody doesn't like Wert!***

Dear Mr. Campbell:

Put on your smoking jacket and light up your pipe. I'm back in again, and with another longish letter.

Nice cover on this month's Astondding, but one thing spoiled it: Brown and Doid didn't agree on the type of space suits worn by the two men. That is one thing I wish the artists would get together on. One man does the cover, and another the inside illustration, and neither agrees not even in the smallest details, except in the general action. It sort of spoils the reality of the yarn to see space suits or ships depicted one way on the cover and then to see them pictured in an entirely different fashion inside.

Another thing—can't you do something about Doid? I mean, his illustrations. They always look so black, and his machines always have dead-black, rounded casings. Like snails. Why can't he get away from that idea that everything must be rounded and curved, and black? If I were to see just one enlist machine or man or space suit in one of his pictures I'd fall down and shout "hallo-yah!"

Well—and again, well! You sit there so smug and smug like a bug in a rug and pat yourself on the back and call yourself a good fellow and say "Look what I did during the past year," and "Look what I'm going to do during the coming year!" Yes, you smug there all puffed up and glowing with self praise and thinking what a grand fellow you are and what a grand editor you make, and then you pull such a thing as that guy Wert for illustrator! Ye gods, I thought there couldn't be a worse artist than Morey, but you got 'im. You say: "Don't want Paul! Paul no good! Paul's people are too standardized, I want human-looking people!" And then you let Wert run about. "Hnmau-looking" people, indeed! Look at the guy in the picture for "Hanger Death," the one just out of the rocket ship. Ever see anyone with a face like that? Yes, in a zoo, maybe. Looks just like a simian's face, doesn't it? You go and give us a really good issue and then let a guy like Wert mess it all up! Aw, nuts! On the picture on 34-35. The only thing that keeps it from being just a plain wild and woolly West affair is that Zeke isn't pulling a .44 from his hip. As a last thrust—if Wert is your idea of a good staff artist, then please, Great Scientist, save us!

Stories I liked: "Hanger Death," "Other Tracks," "Sunworld of Soldus," "The Command," and part two of "The Tramp."

Stories just fair—they didn't exactly please and are not worth rereading: "The Ceres Affair." And those that I did not like: "Orestes Revolts," and "Magician of Dream Valley."

Well, I'll say this: "Orestes Revolts" and "Magician of Dream Valley" were so shallow, contained so little for real thought, that they aren't worth remembering.

"Hnager Death" was entertaining, but not thought provoking. It's worth rereading, and I will do so quite likely. But again, Wert!

"Other Tracks." Time stories are my weakness. I really did enjoy this one, and I rank it as one of the best in this issue of "our" magazine. You can never print too many time stories for me, Mr. Campbell, so rest assured that whatever you do along this line, I'm with you, me and my twenty cents.

"Sunworld of Soldus." I call this one a real mutant, for I don't remember reading anywhere else the idea of a peopled world within the sun. I wrote a short one a long time back that I never submitted, considering it too rough in spots, along the same general idea: a world within the sun, except my idea had it that the people made the sun as a protective shield between them and another race that was trying to destroy them. I'm glad to see that Schachner is working on a serial. And did you notice, Mr. Campbell, what a nice piece of work he turned out after that little rest? Too bad Wesso didn't illustrate it.

"Magician of Dream Valley." Somehow, Galun's stories never please. His ideas are too shallow. I did like his "Old Faithful" and "Son of Old Faithful," though they are the only ones of his I ever did like that I have read.

"Orestes Revolts." Another robot yarn. Too much like another robot yarn that I read recently. This theme can tire me very easily.

"The Command." Well! A very "human," lovable, likable fellow was Johnny. This black bear stole my affections right off the bat, and I enjoyed it right to the end. Why don't you suggest to deCamp the idea that he see Johnny Black in a few more yarns. Weave a series about him. I'm sure that would go over big. I know I'd be tickled pink to see the lovable black bear about the joint again. Wouldn't you?

"The Ceres Affair." This didn't seem as good as the foregoing Casey yarns. Maybe I'm tiring already, but I don't think so. For a light reading period wherein you can rest and enjoy yourself, I recommend Kent Casey yarns.

"The Tramp." Was it necessary to make each part so short? Somehow or other it seems cheapening. But still, it was very interesting, and I can hardly wait until next month to see what really happens. I just thought of something: couldn't poor old Doughface look in a mirror or something and make himself young and spry and then he could marry the girl or something?

"Why Rockets Don't Fly" was good, and I was very interested in the case as put forward by one Peter van Dresser. A Hollander, huh?

Things are certainly picking up. You got us Ray Cummings. And now Earl Vineet, both of them favorite authors. But how I would like to see a story by Stanton Cohberts, or Edmond Hamilton, or R. F. Starn, or Captain S. P. Meek, or Ed Earl Repp. You see, I'm building up a set of Astonddings since the Year One, and I'd like all my favorite authors and illustrators in that set.

Do you know that a company named Gold Shield Products in New York sell binders of different sizes in which you can place your magazines to make up a book and keep them in good shape? I was thinking of buying one and seeing how Astondding would look that way. And by the way, did you ever think of selling such binders with the name Astondding Science-Fiction on them to bind up six or twelve copies of the magazine in?

Yours for a bigger and better Astondding—Leslie A. Crouch, 41 Waubeek Street, Parry Sound, Ontario, Canada.

***Cyclops, having only just arrived, would have collected few meteors.***

Dear Mr. Campbell:

I may as well say at the outset that the October issue was an entirely satisfactory one, and,

according to my figures, the best since February, 1938.

"Other Tracks," by William Sell, led the field by several lengths. The idea was a real mutant, one that opens up vast vistas of material for thought. Just think, for instance, how you might evolve humanity by bringing 1938 knowledge to 1838, as the heroes did, and advancing the world a century ahead of itself and then repeating the process over and over till we reach the acme.

Kent Casey gets better as he goes along. "Ceres Affair" is the best thus far of the John West-Dr. von Thell series. Are there a few more of that series coming up? I hope so. I notice, though, that Von Thell has evolved from a cheerful cherub into an irascible-but lovable old fellow. Well, the change is for the better, so why kick?

As Nat Schachner is easily my favorite author, I was disappointed with "Sunworld of Solids." Not that it isn't a four-star story, but after that "Past, Present and Future" series, you know, I expect all five-star stories. The writing was excellent, and the lack of love interest commendable, but it took quite a bit of gagging before I could swallow that planet-within-the-sun business. Also, a heroic ending where the hero sacrifices himself for the rest sort of grates me. Still, I can't knock Schachner; it was a good yarn.

"The Command" was deCamp's best so far. These fantasies are, for the most part, (I exclude "Double, Double") very enjoyable. Of late, the non-human characters like this educated bear, or robot X1-2-200 in the last issue, seem more human than regular men and women. I can't say anything about "The Tramp" yet. I've read the installment, but I'm suspending judgment till I get the last part. I'm not sure whether to give it four stars or let it be satisfied with three and a half.

Ray Gallun got off the best story since his "Beast of the Void" with "Magician of Dream Valley." Usually I find his tales rather poor, but I am glad to say this was an exception. (Also, I thought the cover illustration was excellent.) Clifford D. Simak in his "Hunger Death" tarred out a much better yarn than that monstrosity, "Rite 18," but I still think his style of writing is rather disjointed. It was good enough, though.

That leaves "Orestes Revolts" by the Binder boys for the last. Nothing against the story, you understand, but I think the field was covered adequately by Ray Cummings' "X1-2-200." I didn't like the article, either—dry as dust.

Now for some general remarks. Now that we are going to have a mutant cover with Jupiter as the subject, Saturn should logically be the next in line, don't you think so? That ought to be the best one of all.

I am glad to see that Hari Vincent is returning. Ed Earl Repp is back in science-fiction, too, and more of the old-timers ought to come back, too.

Oh, yes, I once pointed out that the mirror on the planet "Cyclops" (in "Men and the Mirror") should be scarred by meteors, and you pointed out that there were no meteors in interstellar space. Well, I reread the story, and as far as I could see, Cyclops had entered the Solar System, which is not interstellar space—Isaac Asimov, 174 Windsor Place, Brooklyn, N. Y.

**The idea of obtaining a desired end by altering the past had not been used before, and was not in "Legion of Time." The new paper costs more and is experimental.**

Dear Mr. Campbell:

The October Astounding clearly indicates that you have accepted the challenge. And you'll really have to keep this pace up if you expect to remain "king of the hill." I hope, too, that

you have an ace in the hole or something.

"But credit where credit is due." The October Astounding left very little to be desired. The cover was superb. Please, no more Thomson. Brown is the best cover artist you have.

You've kind of put me on the spot concerning the stories, but I guess ties are permissible, even though you offer no duplicate prizes.

"The Command," by L. Sprague deCamp, for its startling originality, and "Why Rockets Don't Fly," the most interesting fact article I have yet read, will have to fight it out among themselves for first honors. I certainly can't decide which tops which.

"Other Tracks" deserves second place even though it, strictly speaking, was not a mutant. It was a very clever variation of the "Legion of Time" plot.

"Hunger Death" next. Simak overwrote this one, even though it was a fine story. Rich in local color, I mean. Then, your blurb detracted from its general interest by letting the cat out of the bag. Please be careful in what you say lest you ruin an ending.

Say! About ten pages of the copy I received were on smooth paper! This paper, I presume, cost the same as the regular type or it wouldn't be in there. Why, oh, why can't you make the whole magazine that way? It feels, looks, and is better. Gives the magazine a dignified "slick" air.

Still waiting for that cover showing Earth as seen from a spaceship—Mark Reinberg, 430 Sarf Street, Chicago, Ill.

**In other words, it isn't what you say, it's the way you say it.**

Dear Editor:

After reading Isaac Asimov's letter in the September Brass Tacks, I feel the necessity of taking the issue of "swooning dames" up with him.

To begin, he has made the grave error of confusing the feminine interest with the sex theme—or proof of this turn back to the time-honored *Skyhawk* stories and note well the fact that the presence of Dorothy detracted from the general worth of the story not one bit, then compare one of Kuttner's pieces of hokum with it, and the distinction will be evident to even the most nonobservant reader.

Continuing this bigoted line of thought, he goes on to express himself as regards much in *s-f*. Undoubtedly it has never occurred to him to wonder whether the girl fans like the incredible adventures of an almost-ridiculous hero any better than he likes the impossible romance of an equally impossible heroine. He probably still cherishes the outdated theory that a girl's bra is used expressly to fill up what would otherwise be a vacuum in the cranium.

To his plea for less hokey I give my wholehearted support, but less hokey does not mean less women; it means a difference in the way they are introduced into the story and the part they play. Let Mr. Asimov turn the pages of a good history book and see how many times mankind has held progress back; let him also take notice that any changes wrought by women have been more or less permanent, and that these changes were usually made against the prejudice and illogical arguments of men, and feel himself chastened.

Also, the fact that the feminine sphere of influence carries over to Donald Turnbull is shown by the inference that he reads *s-f* to escape from them. Did you ever want to escape from an authority that didn't exist, Mr. Turnbull? Regarding the occasional "white crow"—all famous people are "white crows," according to that theory, which reasons that to have invented or done something useful makes a "white crow" of the person. There is a larger percent of famous men than of famous women—sure, but remember that women haven't been actually included in the sciences except for the past hun-

dred years or so. Note the number of successful women today, though!

Yours for more like "Who Goes There?" and "The Terrible Sense" and less like "The Legion of Time"—Mary Byers, Chaney Farm, R. F. D. 3, Springfield, Ohio.

See heading on Reinsberg letter. And E. E. Smith's article "Catastrophe!" in the May Astounding answered your question.

Dear Editor:

My comments on the October issue of Astounding: The cover was the best part of the magazine. One of the best covers I've seen on a magazine of this type. However, the stories and illustrations between the covers were not up to the high level of excellence which you have reached many times in the past.

My chief grievance in regard to interior illustrations is: not enough Wesso. Both his and Dold's work is excellent. Jack Binder's double-page spread for "The Command" deserves commendation. There is no signature on the illustration for "The Tramp," so I suppose it is by Orban. I like his style on everyday scenes. The other pictures are acceptable, with the exception of those by Wert. They are bad.

It is difficult to list the stories in order of preference, for several of them appealed to me about equally. The better ones were "The Tramp," "The Command," "Hunger Death," and "Other Tracks." None of the stories were mediocre or uninteresting, but neither were there any which stood out as exceptional.

Your heading says that "Other Tracks" is a mutant. I believe this implies that the story contains a new conception or idea. Has not the same basic idea appeared in other stories? Perhaps not presented in the same way, not explained with diagrams, but—would not the Ford magnet of the "Legion of Time" be comparable to the stamps, et cetera, of "Other Tracks"? Evolution, perhaps, but not a mutant. (Perhaps I do not understand the term mutant, but I cannot recall any story in the past twelve years which could be called a true mutant. If my memory is poor, will someone jog it? It may be that in looking for a mutant I am expecting to find an entirely new species.)

I was disappointed in Nat Schachner's story. He has selected only that science which will advance his plot and has conveniently disregarded everything else. We like our science fiction at least plausible—else we are reading fantasy, and poorly written fantasy, at that.

The science article was interesting. I would like to see an article along the lines of the recent "What Are Positrons?" And an article by you, Mr. Editor, explaining why the "cosmic cataclysm" theory, rather than the "nebulae" theory of the birth of the planets, is now accepted. The latter theory has always seemed to me to be the correct one. Explanations, please!—L. M. Jensen, Box 33, Cowley, Wyo.

William Sell will appear again, I'm pretty sure.

Dear Editor:

By this time you must be tired of receiving plaudits from my typewriter ribbon. However, like Major Bowes, (condolences to the major) I've found less recourse for the gong. This is entirely your own fault.

Fellow fictioneers may foam at the mouth in sheer ecstasy of the magic name of "Paul," but I'll take Artist Brown any time. Friend Paul is of the fancy-pantsy school, which employs loud color and pot-faced heroes. Who was it called his heroes "unabridged boy scouts"? Howard Brown has that certain touch which makes his characters three-dimensional and he does a minimum of assinine background. His late cover for "Magician of Dream Valley" was quiet, cool and plausible. It might have been ridiculous in other hands. You need look no further for a technician "in the future," who will brig mutant covers to Astounding: you have better than that.

"Magician of Dream Valley" has a silly, conventional hero, an antiquated plot—and an un-

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"The Tramp," as far as we've read, is excellent, but—and will you hear this again?—not science-fiction. Anyhow, though misplaced, it is easy reading.

"Other Tracks" is the tale you probably want to hear most about. Well, you say it's a mutant. I say no. I think that though cleverly written, it cannot be classed as mutant because only the incidents are different. Not the plot. But you have as big a find in William Sell as you might have had in Dr. Cootle some time back. ("A Surgical Error.") Doubt let Sell slip back to oblivion.

I haven't finished the issue, but there are others who have. Thus, I'll sign off and give them a chance to speak to you—Jerry Turner, Ohio State University, Columbus, Ohio.

## DeCamp should be pleased.

Dear Editor:

Seeing my own letter in the October issue was so startling that I will write a lot. It's your own fault.

The September issue was not up to par. The cover was very bad. That story "Impulse" must have been an imitative impulse because it came so soon after "Who Goes There" and was so much the same kind. I do not believe there can be any kind of action without previous thought, even though we may not be aware of the thought. Ray Cummings put over another stinker, "X1-2-200," gilded with his name. "Double! Double!" might have been good if it hadn't tripped over its own cuteness. "Orbit XXIII-H" I may call good on idea, but it was too much frosting on too little cake. "The Tramp" about the same, only the objection is that it could stand a lot more explanation of its very startling hypothesis. "Robots Return" is good fantasy.

"The Trapper" is well told, like anything Burks writes. I once wrote you a lot of ill feeling for Burks, but I admit he's a good writer. You ought to have a confab with him. Point out that he had good science in "Hell Ship," but ruined it by stretching it. Here he has a good story but no science. I still say he gets by with an awful lot. A simple little time machine, sir? How does it work? Come on, Burks, how does it work? "The Tramp" accelerates. "Sunworld of Solids" has a novel place to happen in, but it's too much in the tradition of a certain other sci-fi mag—raw action, raw action. One is now worn out with Earthmen landing on other planets and taking the obviously right side in the always-handy war. "Magician of Dream Valley" rose feebly awhile, then fell flat.

"The Command!" Command deCamp to write more! Delightful!

"Other Tracks" is good on plot, but the writing is extremely amateurish. Like "The Trapper" if need explaining. Your authors used to explain time; now they just throw it around.

"Hunger Death" is lousy—just a plain lousy story brought to Venus, but it might as well have happened in Garden City.

"The Ceres Affair" is a decadent Casey. When you started Casey off with his "Flareback," he paid attention to his science and we all had fun. Lately he's been tapering off into the Schenker-Burks-Cummings school of spuriousness. Dr. von Thell won't explain it, sir? That does save a lazy author a lot of trouble.

"Ghosts Revolt" was faulty in spots, but quite a good foundation story. Call it good. The illustration was very bad, though.

The article on rockets is fine. Easy to get through, yet full of information.

The cover is fine. Did anyone notice that the space suits on the cover and in the interior illustration for "Magician of Dream Valley" are of different patterns?

Mr. Editor, please don't mind my scolding. I enjoy scolding—Albert P. Quirk, 502 Church Avenue, Brooklyn, N. Y.



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